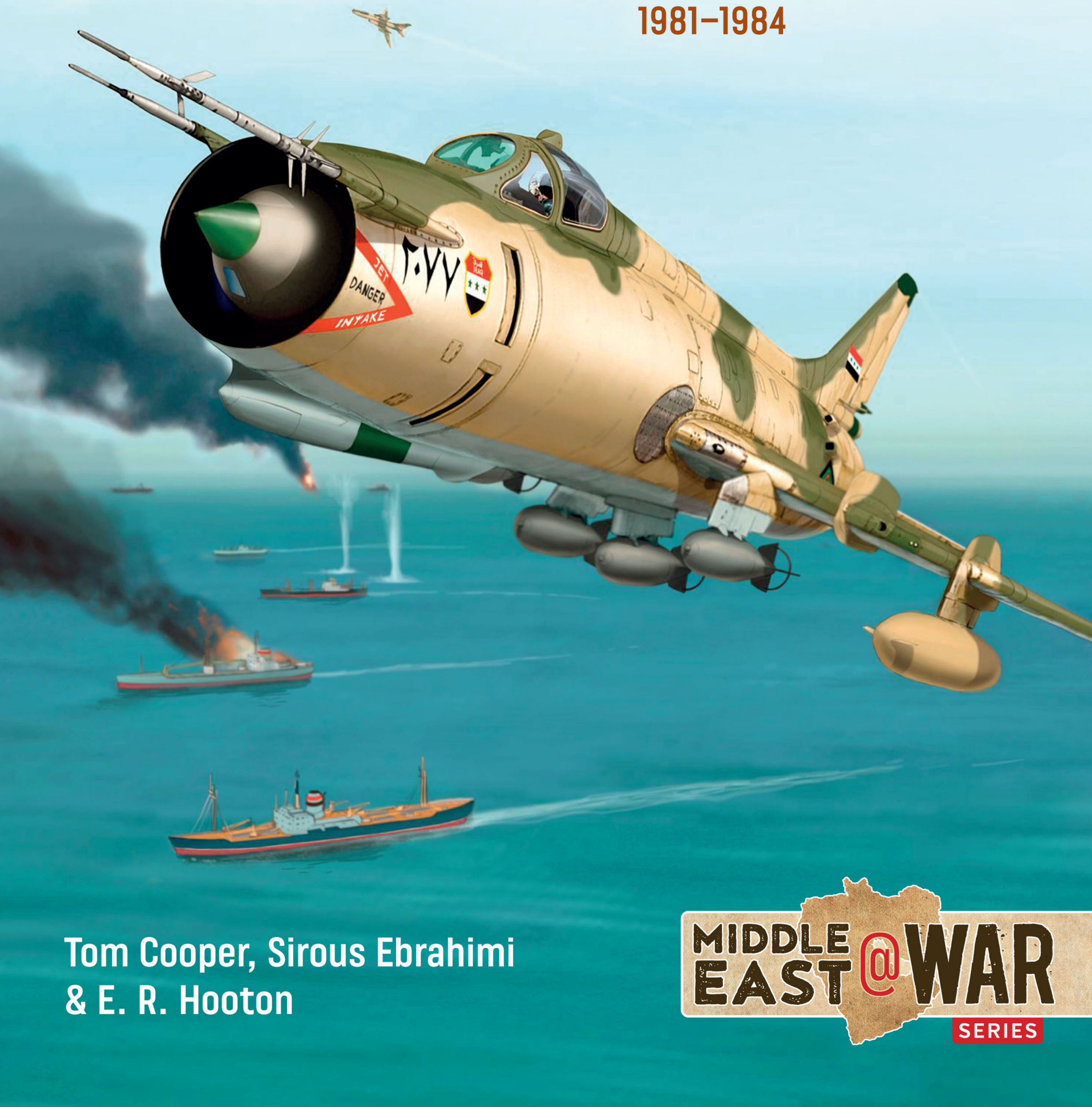
MIDDLE EAST@WAR No.63

FULL COLOUR THROUGHOUT

IRAN-IRAQ NAVAL WAR

VOLUME 2: CONVOY BATTLES, 1981–1984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JET
DANGER
INTAKE

Tom Cooper, Sirous Ebrahimi
& E. R. Hooton

MIDDLE EAST@WAR SERIES

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Caspian Sea
Turkey
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Bahrain
Persian Gulf
Qatar
UAE
Oman
Red Sea
ARABIAN SEA
Yemen
Gulf of Aden

Note

In order to simplify the use of this book, all names, locations and geographic designations are as provided in The Times World Atlas, or other traditionally accepted major sources of reference, as of the time of the described events. Similarly, Arabic names are romanised and transcripted rather than transliterated. For example: the definite article al- before words starting with 'sun letters' is given as pronounced instead of simply as al- (which is the usual practice for non-Arabic speakers in most English-language literature and media). For the reasons of space, ranges – which are usually measured in feet and nautical miles in international aeronautics – are cited in metric measurements only. Finally, while both canal and channel refer to waterways and are sometimes used interchangeably, we use the word canal to refer to man-made waterways, and channel for natural waterways.

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Cover Illustration: A Su-22 fighter-bomber of the Iraqi air force, armed with six FAB-500M-62 bombs, seen passing over a convoy of merchant ships underway for Bandar-e Khomeini, in the northern Persian Gulf, while escorted by the Islamic Republic of Iran Navy, in 1981. (Illustration by Pablo Albornoz © Helion & Company 2024)

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ABBREVIATIONS

AB	air base
ADOC	Air Defence Operations Centre (Iraq)
ASCC	Air Standardisation Coordinating Committee
BARCAP	barrier combat air patrol
BIK	Bandar-e Khomeini
bpd	barrels per day
CAP	combat air patrol
Chaff	reflective jamming device made up of thin, lightweight metallic strips, cut to one-half length of the target's radar wavelength
COMINT	communications intelligence
CTL	constructive total loss
dwt	deadweight tonnage; a measure of the carrying capacity of a ship
ELINT	electronic intelligence
FAC	Fast attack craft
FASHA	Electronic Reconnaissance and Intelligence Command, IRIAF
GOSP	gas-oil separation plant
grt	Gross Registered Tonnage; a measure of the cubic capacity of a ship
IFF	Identification Friend or Foe
I-HAWK	Improved Homing-All-The-Way Killer (US-made SAM)
IrAF	Iraq Air Force (official designation since 1958)
IRGC	Islamic Revolutionary Guards Corps (Iran)
IRIAA	Islamic Republic of Iran Army Aviation
IRIAF	Islamic Republic of Iran Air Force
IRIN	Islamic Republic of Iran Navy
IRINA	Islamic Republic of Iran Naval Aviation
IRIS	Islamic Republic of Iran (Navy) Ship
IRISL	Islamic Republic of Iran Shipping Lines
JCS	Joint Chiefs of Staff (Iran)
MANPAD	man-portable air defence system (shoulder-fired anti-aircraft missile)
MiG	Mikoyan i Gurevich (the design bureau led by Artyom Ivanovich Mikoyan and Mikhail Iosifovich Gurevich, also known as OKB-155 or MMZ 'Zenit')
NATO	North Atlantic Treaty Organization
NIOC	National Iranian Oil Company
nm	nautical mile (2,000 yards, 1,852m or 1.85km)
NSA	National Security Agency (USA)
PMO	Port and Maritime Organisation (Iran)
SAM	surface-to-air missile
SAR	search and rescue
SAVAMA	*Sezeman-e Ettalaat va Amniat-e Keshvar* (Intelligence and Security Organisation of the Country; reorganised SAVAK since 1979)
SBS	Special Boat Service (IRIN)
SIGINT	signals intelligence
Su	Sukhoi (the design bureau led by Pavel Ossipovich Sukhoi, also known as OKB-51)
TFB	Tactical Fighter Base (IRIAF)
ULCC	ultra large crude carrier
USSR	Union of Soviet Socialist Republics (also 'Soviet Union')
VLCC	very large crude carrier

INTRODUCTION

This is the second volume in the mini-series of books about naval warfare between Iran and Iraq during the Iran-Iraq War of 1980–1988 (or 'First Persian Gulf War'). In Volume 1, we described the history of the area, the geo-strategic and socio-economic circumstances as of the late 1970s and early 1980s, and the maritime build-up of Iran and Iraq. That book concluded with a detailed reconstruction of the first naval clashes between the two belligerents between September and December 1980. In Volume 2, we intend to proceed with as detailed a chronology of naval warfare between Iran and Iraq through the period of 1981–1983 as possible – primarily because (and contrary to the popular belief) not only was there a significant amount of naval warfare during this conflict but this heavily influenced the pattern of the war on the ground and in the air.

Although never properly documented in the English language, and thus escaping public attention in the West in particular, dozens of air-sea battles were fought in the waters of the Persian Gulf – and in the sky above it – between 1981 and 1983, and this sea war was much more than just brown-water actions. Thanks to efforts by co-author Ebrahimi – a veteran of the Iran-Iraq War who subsequently served as a naval pilot with the Port and Maritime Organisation of Iran (PMO) – we were able to work through hundreds of official documents of the Islamic Republic of Iran Navy (IRIN), including official correspondence, post-mission reports, and various other communications. As a result, this volume is largely based on IRIN documentation. While this makes it far better-substantiated than any earlier publications about the Iran-Iraq War, for us as authors it is still far from entirely satisfactory. Therefore, we have sought to complement our research with documentation from the archives of the Islamic Republic of Iran Air Force (IRIAF).

In the process of this work, it did not take long to realise that IRIN documentation might be not entirely complete for some periods in 1981, 1982 and 1983, but is still far more detailed, and far more reliable than any other sources with which we have worked so far. In particular, it is almost complete in regards of major convoy operations. On the contrary, the IRIAF documentation seems to be missing any of the convoy operations that were cancelled or delayed: in other cases it is wrongly-dated, and in the same or yet other cases it lacks background and context – just like so many contemporary and subsequent Western reports. Having cross-examined all of this, we are convinced that the following account is the most complete published thus far, whether in the English language or in any other.

While the availability of Iranian documentation represents a major breakthrough in regards of research about this conflict, it also results in availability bias because, presently, no similar Iraqi sources are available, and thus a completely balanced work remains impossible. This is why we went to great extents to obtain and examine as much information from private contacts in Iraq and abroad – as well as published Iraqi and Western sources – as possible. Foremost amongst these was the content of a series of interviews with Brigadier General Ahmad Sadik Rushdie al-Astrabadi of the little-known Iraqi Air Force Intelligence Directorate, conducted in the form of meetings in person and a vivid e-mail exchange in 2004–2008. Ahmad started his career at Firnas Air Base (AB), outside Mosul, in the early 1980s; before serving at Abu Ubayda AB, then in one of the top positions in Project al-Hussein (development of ballistic missiles), and later as a liaison officer between the Iraqi government and the weapons inspectors of the United Nations in the 1990s. During multiple meetings in Syria with co-author

Cooper and subsequent cooperation in writing several articles and books, he provided not only some 200 pages of curriculum vitae for several highly-decorated officers of the Iraqi Air Force (IrAF), but also many other details.

Another contact strongly influencing this work was Farzin Nadimi from Iran: the former editor of one of the top Iranian military aviation journals, before embarking on running a major project for his PhD thesis about the effects of the Iraqi aerial offensive upon the Iranian oil-exporting industry. He was the first 'outsider' granted permission to work with the archives of – amongst others – the National Iranian Oil Company. Combined, Sadik's insider knowledge and documentation, and Nadimi's findings have formed the backbone not only for an entire series of articles published in France during the late 2000s, but also for this project. Engineer Günther Jakowitsch from Austria ran major construction projects in Iraq in the 1980s – all related to water supply and irrigation – and never had any kind of relation to the local armed forces at that time. However, in 2004, he was contacted by one of his close friends from Iraq: indeed, a member of the family of the former chief Iraqi negotiator (or 'commercial agent') for some of the most important arms deals between Baghdad and Paris that were ever signed.[1] Thanks to him, we were able to obtain detailed information on several affairs related to the inner workings of the Iraqi government in the 1980s, its cooperation with France, and the flow of the naval war against Iran. Finally, Ali Altobchi, an engineer involved in Project al-Hussein, who has recently published a related book in Helion's Middle East@War series,[2] and has collected immense knowledge about all aspects of the Iraqi armed forces of the 1970 to 1990s, has provided many details about specific units and operations of the IrAF and the Iraqi Navy.

There is no doubt that some might find the results of our research – and thus this book – go too far in regards of explaining the backgrounds, and especially too much regarding air warfare. The fact is – and even the IRIN documentation confirms this beyond any doubt – that the background and context, whether in the form of arms acquisitions and training from the times before the Iran-Iraq War, or the air war between Iran and Iraq, or intelligence-gathering operations during this conflict (to name just a few examples), directly influenced the flow of naval warfare throughout the eight years of this conflict. It is also a fact that through applying this working methodology, our conclusion is that we have unearthed lots of information that was previously entirely unknown, or if available then misunderstood because the background or context were not known, or at least not entirely known. A good example in this regard would be the case of the first combat deployment of the French-made Aérospatiale AM.39 Exocet anti-ship missile, which gained much fame during this war, and the other contemporary naval conflict, the Falklands War of 1982. The reason is that full understanding of the scope of the naval component of this conflict is impossible without also explaining all the related details and factors. Indeed, if we have failed in regards of anything while working on this book, then it is precisely in this arena.

Overall, this book seeks to continue the story of the naval war between Iran and Iraq where Volume 1 ended in late 1980 and early 1981. It does so through shedding light on hundreds of convoy operations, resulting in hundreds of minor clashes between the Iranian and Iraqi navies and air forces, and also between the ground forces of both countries. It is a comprehensive account of all the naval warfare aspects of this conflict and also their impact upon the flow of the war in the air and on the ground. By doing so, we hope to correct at least the majority of related misconceptions – especially the one that there was no naval warfare between Iran and Iraq – and instead highlight the crucial role played by naval forces in shaping the outcome of this complex and multifaceted war.

1

THE SILENCE BEFORE THE STORM

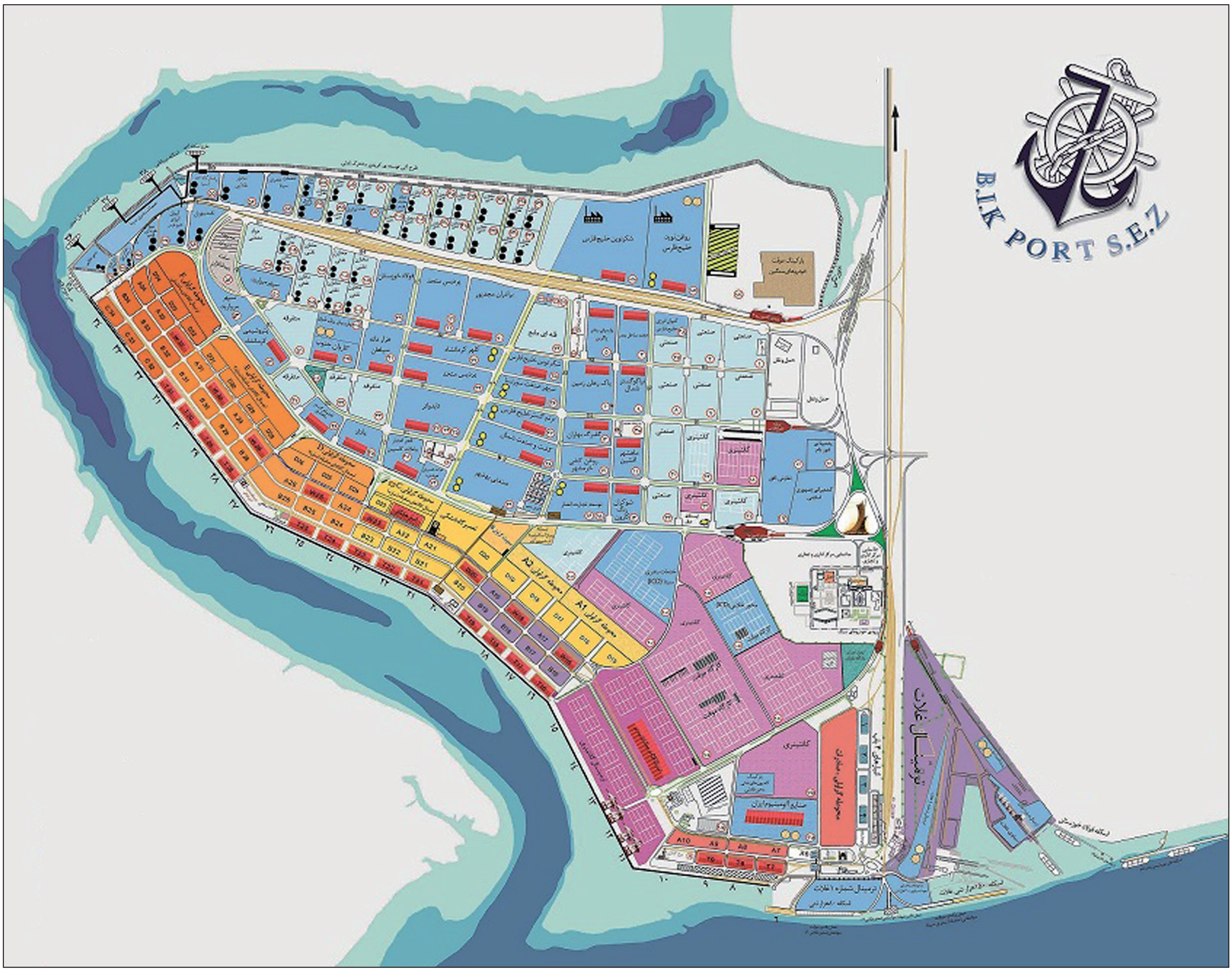
In September 1980, the government of Saddam Hussein at-Tikriti (colloquially referred to as 'Saddam'), attempted to capitalise on the post-revolutionary chaos in the recently-declared Islamic Republic of Iran in order to strengthen the position of his country – the Republic of Iraq – through establishing full control over the vital Shatt al-Arab waterway. Moreover, Saddam aimed to seize a significant stretch of Iranian territory, including the oil-rich, western side of the Iranian province of Khuzestan. Finally, the strongman in Baghdad hoped to incite a revolt against the theocratic government of Ayatollah Ruhollah al-Moussavi al-Khomeini (colloquially known as 'Ayatollah Khomeini'), in Tehran, and thus lessen the pressure from it upon his own regime at home, and also to help create a new Iranian government that might be more amenable to meet his

The Mina al-Bakr oil-exporting terminal, seen while under reconstruction by the US armed forces, in 2002–2004. (US DoD) conditions both in regards of the Shatt al-Arab and numerous other border disputes between Iran and Iraq.

Much to the surprise of the leadership in Baghdad, its own poor planning, unrealistic expectations and lack of any clear strategic military objectives; fierce Iranian resistance left the Iraqi armed forces bogged down in a conflict they could not win. After making only a slow and relatively shallow penetration of the Iranian territory, the army was unable to continue pushing further east. Instead of destroying the mass of the Iranian air force on the ground, or at least blocking its runways through a three-wave opening strike on its major air bases, the IrAF proved too small, lacking targeting intelligence and lacking the firepower to accomplish its task. Rather than inspiring Khomeini's opponents, the Iraqi ground invasion actually helped the clerics in Tehran solidify their power. Although largely grounded before the Iraqi invasion, the IRIAF rapidly recovered from the initial shock, and launched a major campaign of air strikes first on the IrAF, and then on the Iraqi oil industry. As a result, the IrAF was put on the defensive, while all the major facilities of the oil and gas industry were badly damaged. Immediately after, the IRIAF switched its attention to the concentration of mechanised formations of the Iraqi army that were marching into Khuzestan, and in days of air strikes destroyed dozens and then hundreds of Iraqi tanks and other military vehicles. In similar fashion, while almost demobilised as of September 1980, the Islamic Republic of Iran Army (IRIA) reactivated most of its units and fought back with gusto. Moreover, the IRIN proved vastly superior to the diminutive Iraqi Navy, and in the course of several skirmishes and then two major naval engagements, successfully bottled up its opponent within the confines of the Khowr az-Zubayr and its isthmus, Khowr Abdullah. As if this was not enough, in late November 1980, the IRIN and the IRIAF conducted Operation Morvarid, that left the two principal Iraqi oil-exporting offshore terminals – Mina Khowr al-Amiyah (KAAOT) and Mina al-Bakr (ABOT) – completely demolished. By the end of 1980, Baghdad thus found itself unable to continue exporting oil and gas and thus financing its adventure in Iran. Indeed, Iraq was forced to import refined fuels and, later on, continued fighting only thanks to extensive financial support from several Arab states on the western side of the Persian Gulf. Indeed, before long, Iran began poising for its first major counterstrike.

Iranian Oil Industry

Primarily located in Khuzestan province and the Abadan area, the Iranian oil industry had experienced rapid growth since the 1920s. Its exporting capability always relied on tanker ships: by the 1940s, these had grown in size to a point where they could no longer operate within the restricted Shatt al-Arab waterway. Indeed, even the port of Mahshahr proved ill-suited for further growth. This led to the construction of a major deep-water terminal originally named Bandar-e Shahpour, renamed Bandar-e Imam Khomeini in 1979, and colloquially known as 'BIK' to Iranian seafarers. This



The primary destination of the northbound convoys organised by the IRIN: the port of Bandar-e Khomeini (BIK). (PMO) featured not only significant oil-loading facilities, but also the largest modern, general-purpose port in the Middle East. Thanks to its railway link to Ahwaz, Abadan and further afield, this port was capable of handling enormous volumes of oil, fuel, general cargo, and even troops and supplies with minimal delay.

The dramatic growth in the size of tanker ships in the 1960s prompted the Iranians to construct an entirely new oil export terminal. Selected for this purpose was Khark Island: a pair of rocky outcrops approximately 42 kilometres off Iran's coast, 44 kilometres southwest of Genaveh and 60 kilometres west of Bushehr. First, the Iranians constructed an extensive, multi-line pipeline, including connecting Khark with Abadan and 24 oil fields, 304 producing wells, and 60 production, treatment and booster units. At its southern end, this expansive network of pipelines converged at the Gorreh pumping station, before continuing to the Genaveh manifold – both located on the shore of the Persian Gulf. One of the most powerful pumping stations in the world, the Gorreh facility comprised three separate plants (designated A, B, and C), equipped with a total of 17 pump/turbine units boasting a combined output of 130,800 horsepower and a throughput capacity of 9 million barrels per day (bpd). Connected either directly or indirectly to virtually all crude oil production from inland and offshore oilfields in Iran, the Gorreh pumping station was regarded as the 'heart of Iran's oil industry'. It required so much electric power that it became the principal reason behind the Iranian decision to launch the construction of a nuclear powerplant outside Bushehr. Similarly, the Genaveh manifold, located just 4.5km northwest of the port of Genaveh, played a crucial role as the starting point of six 38km-long submarine pipelines to Khark, some of which were laid at depths up to 56 metres. The sole purpose of the Genaveh manifold was to regulate the flow of crude oil from mainland to Khark.[1]

Fortress Khark

Following its journey through the Gorreh pumping station, the Genaveh manifold, and the undersea pipelines, oil would subsequently arrive at the Flow Control Station on Khark. This facility controlled the distribution of oil into the local tank farm, which housed 41 crude oil storage tanks with a total capacity of 24.5 million barrels. From there, the further flow was managed using large, motor-operated valves. Owing to the island's considerable elevation above sea level, loading onto berthed tankers was accomplished solely through gravity. Once at Khark, the crude oil could be loaded onto tankers via three terminals:

- Ten-Berth-Jetty (also known as the 'T-Jetty'), constructed on the east side of the island, capable of accommodating vessels up to 250,000 tonnes, and loading them at rates of up to 3.6 million bpd
- Sea Island Terminal (renamed Azarpod in 1979), which was a smaller but more modern 1,100-metre-long construction on the western side of Khark, capable of supporting the largest tankers and loading them at rates of up to 5.5 million bpd
- Daryush Terminal, featuring a tank farm on the southern part of the island, with a total storage capacity of 5.5 million barrels, and exporting crude oil through a single, conventional buoy system with a capacity of 300,000bpd, located approximately 2km south of the T-Jetty

Furthermore, positioned between the Daryush Terminal and the southern coast of the island was the Khemco Terminal. This had a single jetty berth used to export crushed sulphur and liquid gas. In total, the oil facilities on Khark in the late 1970s and early 1980s offered a capacity of nine-to-10 million bpd. However, this capacity was not used even during the best times of the Iranian oil industry back in 1977: on the contrary, for most of 1980–1983 average exports from Khark were at only about 1.6 million barrels a day.[2]

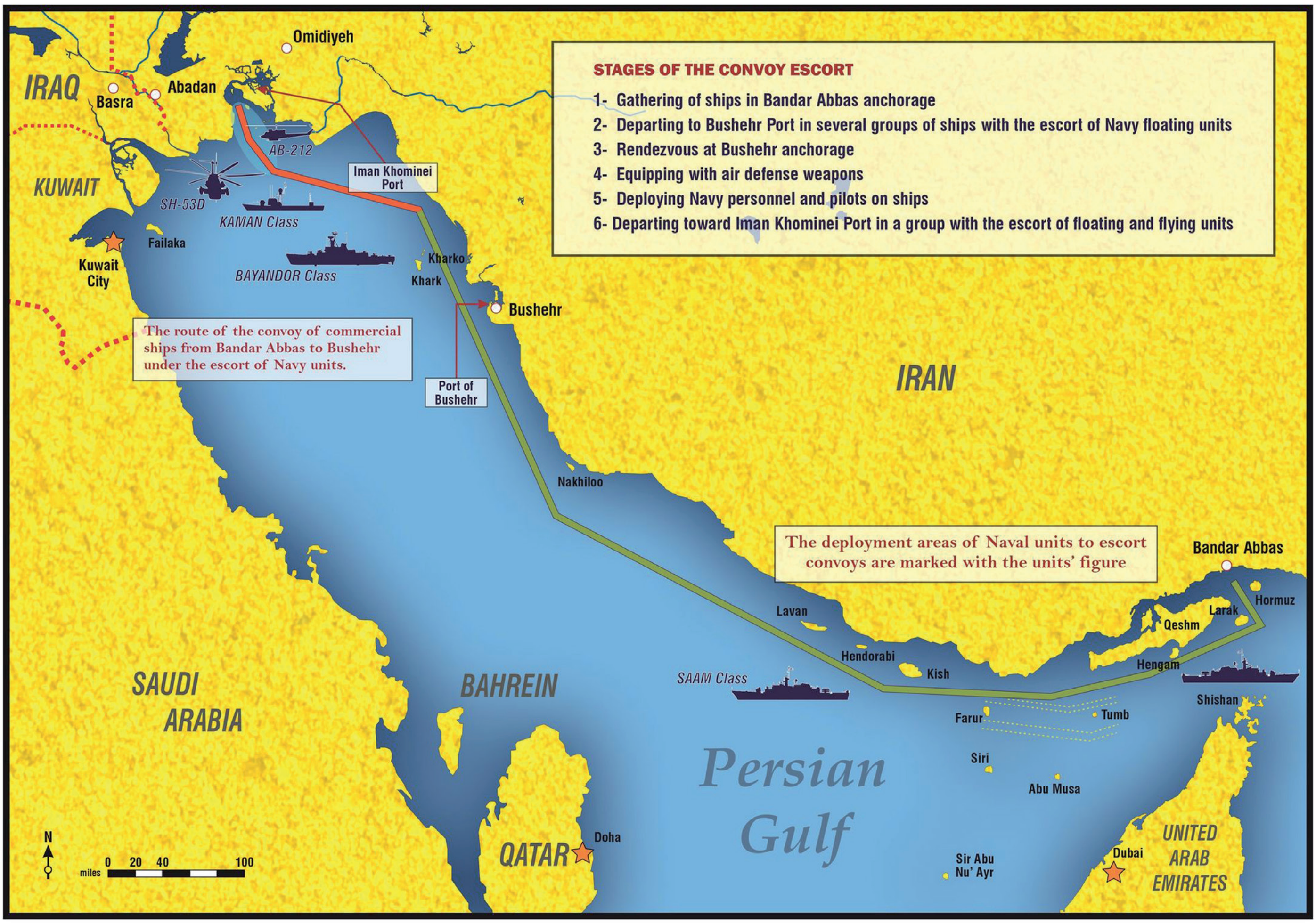
As well as major facilities like those in Abadan, Gorreh, Genaveh and on Khark, the northern Persian Gulf was also crowded by man-made elements of the oil industry: the most obvious amongst these were oil exploitation platforms (or 'rigs') constructed with the purpose of exploiting oil and gas from fields under the bottom of the sea, including those at Abuzar, Bahregansar, Dorud, Foruzan, Hendigan, Sorus and Nowruz.[3] Thus, while vast in its geographic dimensions, the northern Persian Gulf was by no means empty. On the contrary, it was (and it remains) full of man-made constructions. It was the geographic isolation of Iran from the oil markets and the lack of an oil pipeline exporting system, which meant that the country was over-reliant on its loading terminals and the security of sea lanes in the Persian Gulf for exporting its oil. Indeed, in order to be able to finance its increasingly costly war effort, Tehran had to resort to a policy of maximum oil production: starting in November-December 1980, Iran resumed exporting crude oil and henceforth, its oil exports played a crucial role in its ability to continue waging war against Iraq.[4]

Operation Crocodile

Obviously, the war not only caused direct damage to the Iranian oil industry: what is less-well-known is that due to the loss of the refineries of Abadan and Kermanshah early during the war, Iran became a net fuel importer – a fact that was to dawn upon the Iraqis only much later, during the last year and a half of the war. Naturally, this put other Iranian refineries under a massive strain: those in Tehran, Esfahan, Shiraz, Tabriz and on Lavan Island were under pressure to substitute at least some of the loss by continuously increasing their output. This was possible only through an elaborate and time-consuming expansion of their facilities, and a newly-laid system of pipelines, all of which required a massive effort by the Iranian metal, construction and transport sectors.

Simultaneously, in a matter of weeks after the Iraqi invasion, the Iranians had developed a whole network of companies whose only task was the purchase of US-made arms, ammunition and spare parts. The main and official procurement office was in London, UK, in Victoria Street (not far away from the police headquarters at New Scotland Yard), and in the same building as the office of the National Iranian Oil Company (NIOC). At the time, there existed no broad breach of laws in Great Britain, and Iranian activities were completely ignored even by the US authorities. Therefore, this office was able to work almost unobstructed: from London its representatives roamed Germany, Italy, France, Belgium, Israel, Turkey, South Korea, Portugal, Taiwan, Argentina, Brazil and the USA. Paying via bank accounts in Switzerland – because Iran, for political and economic reasons insisted that in no way would its government open letters of credit in favour of companies in the USA – they began acquiring whole wing assemblies and even engines for McDonnell-Douglas F-4 Phantom II and Northrop F-5E Tiger II fighter-bombers, mechanical assemblies for Bell 214 helicopters, gyroscopes and huge amounts of ammunition. While some of this was transported by cargo aircraft, the mass was shipped to Iran by ship.[5]

Combined, imports for repairs and reconstruction of the oil industry and imports of arms and ammunition, along with imports of vital supplies for the civilian population (like sugar, refined


STAGES OF THE CONVOY ESCORT
1- Gathering of ships in Bandar Abbas anchorage
2- Departing to Bushehr Port in several groups of ships with the escort of Navy floating units
3- Rendezvous at Bushehr anchorage
4- Equipping with air defense weapons
5- Deploying Navy personnel and pilots on ships
6- Departing toward Iman Khominei Port in a group with the escort of floating and flying units
Omidiyeh
IRAQ
Basra
Abadan
AB-212
Iman Khominei Port
KUWAIT
SH-53D
KAMAN Class
Failaka
Kuwait City
BAYANDOR Class
Kharko
Khark
Bushehr
The route of the convoy of commercial ships from Bandar Abbas to Bushehr under the escort of Navy units.
Port of Bushehr
IRAN
Nakhiloo
The deployment areas of Naval units to escort convoys are marked with the units' figure
Bandar Abbas
Hormuz
Larak
Qeshm
Lavan
Hendorabi
Kish
Hengam
SAAM Class
Shishan
Farur
Tumb
SAUDI ARABIA
BAHREIN
Persian Gulf
Siri
Abu Musa
N
0 20 40 100
miles
QATAR
Doha
Sir Abu Nu' Ayr
Dubai
UNITED ARAB EMIRATES

A map of the Persian Gulf, depicting the routes along which the IRIN escorted convoys – from Bandar-e Abbas up to Bushehr, and from there to BIK and Mahshahr – together with ship-classes and helicopter types used to support caravans during specific parts of their voyage. (Map by Anderson Subtil)

cooking oil, plastics and similar) were conducted via the ports (from south to north) of Bandar-e Abbas, Bushehr, BIK and Mahshahr.

As described in Volume 1, in order to safeguard the arrival and unloading of merchant ships to these ports, the IRIN organised a convoy system (known as caravans). The voyage of every convoy began in the port of Bandar-e Abbas in the Hormuz Strait, and saw Iranian warships escorting merchants for the first leg of the voyage to the Bushehr anchorage, about 15km south of the port. There, a new convoy was organised, in which merchants travelled to BIK and Mahshahr. As soon as one of the caravans reached its final destination, empty vessels from the ports of arrival would be organised into a new convoy that would return in the opposite – southern – direction: to Bushehr, and then to Bandar-e Abbas.

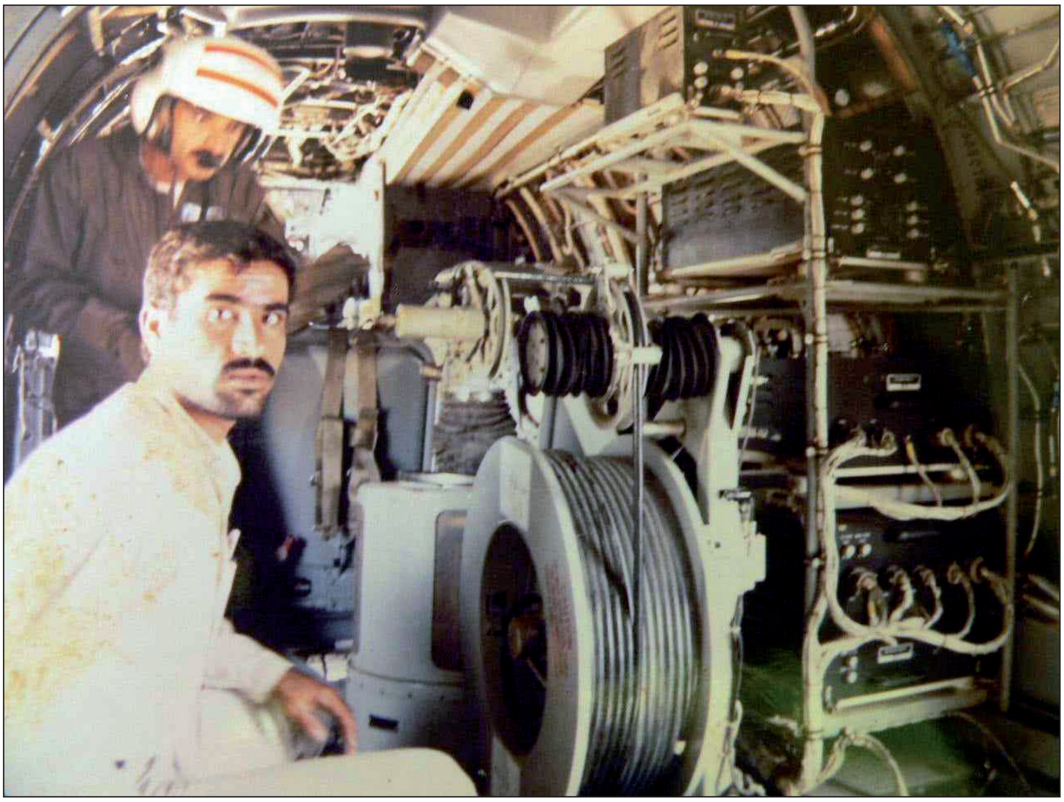
Organisation of Caravans

On average, each caravan consisted of 10 ships, sailing in a column approximately one nautical mile (2,000 yards/1,852m) apart. Larger convoys from Bushehr to BIK and Mahshahr were rare: their size was limited by the number of available merchant pilots skilled enough to navigate ships through the Khowr Moussa waterway, and the capability of the PMO to unload the vessels once they reached their destination.

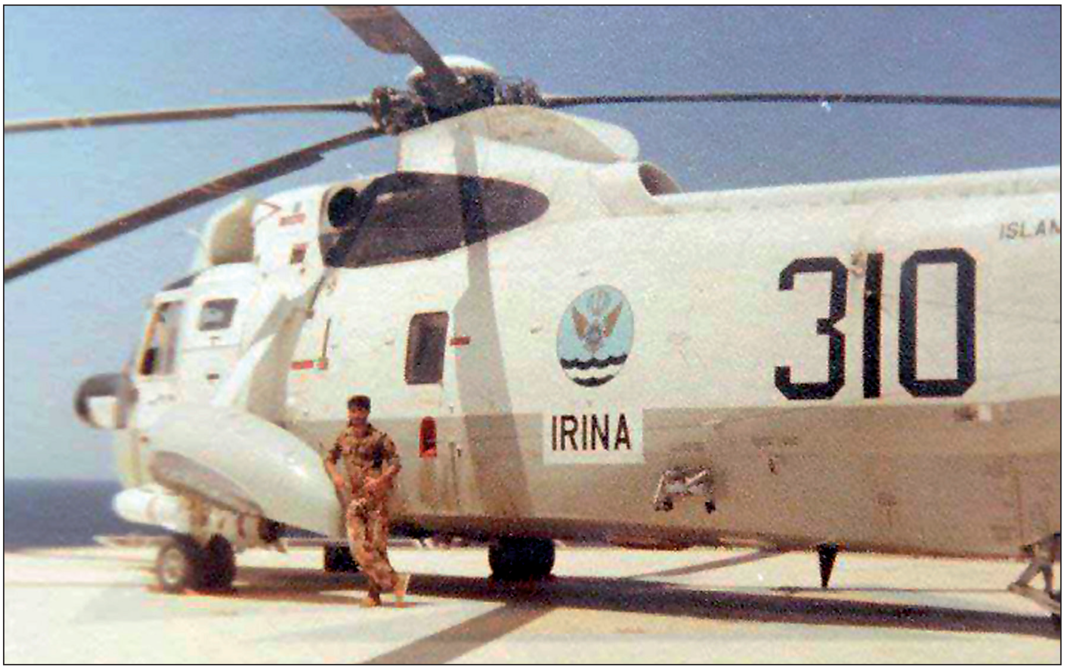
Regardless of the size, each caravan was escorted by between two and four IRIN warships. From Bandar-e Abbas to Bushehr, protection was provided by bigger vessels, like Vosper-class frigates, accompanied by La Combattante IIB-class fast missile craft (or Fast Attack Craft; FAC) (known as the Kaman and then Peykan-class in the IRIN). From Bushehr to BIK and Mahshahr, the task of escorting the convoy was assumed by the vessels of Task Force 643, which also served to protect Khark Island (following Directive Shahab, issued in September 1980). This usually included one or two PF-103-class patrol frigates, between one and three La Combattante IIB-class FACs, and at least one – often more – Mk.III patrol boats. Additional, minor vessels were added as necessary: patrol vessels moved ahead of the convoy to search for mines, while civilian and military tugboats trailed and intervened as necessary.

Generally, freighters and tankers underway with convoys were required to maintain a speed of 13 knots. The most dangerous section of their trip – known as the 'danger zone' amongst Iranian sailors – was the area between Buoy No. 2 in the south, and Buoy No. 23 in the north, directly at the southern entrance to Khowr al-Moussa. Most often, Task Force 421 (TF.421) planned every convoy to start so that its first ship would reach this zone at dawn.[6] At a speed of 13 knots, the passage through the danger zone usually took only four hours. Ships lagging behind the convoy were not defended by escorting warships and thus tended to become very vulnerable. During the passage through the danger zone, all use of radios was strictly prohibited – even in the case of emergency.

On approach to the Khowr al-Moussa waterway, ships in northbound convoys – those underway from Bushehr to BIK and Mahshahr – were boarded by pilots provided by the PMO. Initially, the usual boarding station was near Buoy No. 12. Later on, PMO pilots were delivered to ships by helicopters of the Islamic Republic of Iran Naval Aviation (IRINA), usually Agusta-Bell AB.212ASWs. Pilots would guide ships to the inner anchorage of Bandar-e Khomeini, where harbour pilots would take over. Once the ships



A rare look inside the cabin of an ASH-3D of the IRINA, showing the winch and 'black boxes' of the dunking sonar. (Sirous Ebrahimi Collection)



One of two ASH-3Ds armed with AGM-65A Maverick electro-optically guided missiles in 1983 was serial number 8-2310. This photograph was taken about a year later, and shows it with armed with a Maverick installed next to the cockpit. See the colour profiles section for fuller details. (Keyvan V Collection)

were berthed at BIK or Mahshahr, the port personnel began unloading them immediately, and sought to unload them as soon as possible.

Regardless of whether underway from Bandar-e Abbas to Bushehr, from Bushehr to BIK and Mahshahr, or returning in the southern direction, every convoy was supported by helicopters of the IRINA. The main helicopters, and those regularly flying the most dangerous missions, were Agusta-Sikorsky ASH-3D Sea Kings. Originally acquired to serve aboard guided missile destroyers ordered in the USA, in the anti-submarine role, they were delivered to Iran lacking any kind of missile or gun armament. To support operations Crocodile and Torpedo-2, the IRINA deployed them at various airfields and air bases along the convoy routes, and usually flew reconnaissance ahead of every caravan. Additionally, in 1981, two of the Sea Kings were armed with AGM-65A Maverick guided air-to-surface missiles, to enable attacks against any Iraqi surface vessels encountered. Smaller and lighter Agusta-Bell AB.212ASWs of the IRINA saw intensive deployment for similar purposes: they were armed with French-made AS.12 anti-tank guided missiles, and saw action against the Iraqi Navy, and against the Iraqi army, right from the start of the war.

Integration of Air Defences

Because the threat of Iraqi air strikes was always assessed as high, TF.421 went to great lengths to secure aerial support from the IRIAF. Before the revolution of 1978–1979, within Project Seek Sentry, the air force's Air Defence Command was in the process of building up an integrated air defence system, including Boeing E-3 Sentry airborne early warning and control aircraft (AWACS), a chain of 12 long-range/early warning radar stations constructed by Westinghouse, 19 older radar stations constructed with US and British help in the 1960s and 1970s (Project Peace Ruby), and 30 Hughes MIM-23B I-HAWK surface-to-air missile (SAM) systems, all linked by a communication system using troposcatters. The sale of E-3s to Iran was one of the first contracts cancelled by Washington – almost as soon as the Shah's government was toppled (although Iran was one of its three main financiers). The rest of Project Seek Sentry was about 90 percent completed; however, like the rest of the Iranian armed forces, many of its components were close to being shut down during the chaos of 1979–1980. It was only due to the Iraqi invasion that they were reactivated. Even then, it took the IRIAF several months to completely recover the system. In the northern

Persian Gulf, the Air Defence Command IRIAF was responsible for integrating data from:

- IRIN command nodes (which in turn collected data from navy warships);
- Electronic Reconnaissance and Intelligence Command, IRIAF (abbreviated as FASHA);
- All of the Seek Sentry radar stations;
- Tactical Fighter Base 6 (TFB.6; outside Bushehr; home-base of the 61st, 62nd and 63rd Tactical Fighter Squadrons, all equipped with McDonnell-Douglas F-4E Phantom II fighter-bombers);
- TFB.7 (outside Shiraz; home-base of the 72nd and 73rd Tactical Fighter Squadrons, equipped with Grumman F-14A Tomcat interceptors); and
- TFB.8 (outside Esfahan; the home-base of 81st, 82nd and 83rd Tactical Fighter Squadrons, equipped with F-14As).

Correspondingly, while TF.421 was responsible for the organisation of convoys and their protection from surface and air attacks, it was the Air Defence Command IRIAF that was responsible for providing top cover – with its radar stations and its interceptors. Whenever a convoy was underway, Tomcats – primarily from TFB.7, relatively rarely from TFB.8 – would fly combat air patrols (CAPs) at least on 'Station 10' (or 'Daylan' Station). This took the form of an orbit stretching in east-west direction, roughly halfway between Abadan and Bushehr. If necessary, they would occupy two additional stations further south. Their operations were usually supported by the IRIAF radar station and fighter control centre in Bushehr (equipped with General Electric FPS-88 and Westinghouse ADS-4 radars), and Kohkilooyeh radar station (outside Behbahan, equipped with a Westinghouse AN/TPS-43 radar). Additional input was provided by radar stations in Abdanan (Dezful), Dehloran (Dezful), Omidiyeh, and Sar Bandar (Mahshahr).

For the reasons detailed in Volume 1, early during the war all Iranian Tomcats were armed with only Hughes AIM-54A Phoenix long-range air-to-air missiles (capable of reaching targets over 200km distant) and General Electric M61A1 Vulcan autocannons installed internally. However, during the first months of 1981, the personnel of the Integrated Missile Workshops at TFB.8 began installing AIM-9J Sidewinder infrared homing, short-range missiles, and later on, AIM-7E2 Sparrow semi-active radar-homing, medium-range air-to-air missiles on all the available airframes.

Tomcat operations were usually supported by Boeing 707-3J9C or Boeing 747-2J9F tanker aircraft of the Tanker and Transport Squadron from TFB.1 in Mehrabad, Tehran. Whenever a convoy was underway, at least one of these was airborne on the southern tanker orbit (or 'tanker track'), roughly between Esfahan in the north and Omidiyeh in the south.

Close air support was provided by F-4E Phantom II fighter-bombers of TFB.6 (Bushehr) and TFB.9 (outside Bandar-e Abbas): each base was ordered to keep at least one of these – armed with up to six Hughes AGM-65A Mavericks – on quick reaction alert, whenever a convoy was underway.

FASHA and Crypto-Bats

Probably the least-well-known airborne platform frequently deployed in support of operations Torpedo-2 and Crocodile were Iranian aircraft used for intelligence-gathering purposes. In this regard, the IRIN was heavily reliant on the IRIAF, which included an Electronic Reconnaissance Squadron based at Mehrabad (TFB.1, also known as Tactical Air Base 1 or TAB.1) and an entire command for such purposes: FASHA. This was responsible for collecting and analysing intelligence from more than 30 ground-based radar stations and over 20 intelligence-gathering stations around the country.

The command came into being in the mid-1970s, in cooperation between the Imperial Iranian Air Force, the Intelligence and Security Organisation of the Country (*Sezeman-e Ettalaat va Amniat-e Keshvar*: the main intelligence and security agency of Iran; abbreviated as SAVAK until 1979, and subsequently as SAVAMA), the Central Intelligence Agency (CIA) and the National Security Agency (NSA) of the USA. In the matter of a few years, the Electronic Reconnaissance Squadron was equipped with four C-130Hs (locally re-designated RC-130Hs, and nicknamed '*Khoofash*', or 'Bat'), and two Rockwell Commander 690Es. Within the framework of Project IBEX, all the aircraft in question were modified by E-Systems Greenville Division in the USA through the installation of an advanced navigation platform, and an extremely advanced and extensive suite for gathering communications intelligence (COMINT), signals intelligence (SIGINT), and electronic intelligence (ELINT).[7]

Like that of the whole of FASHA, the nominal task for the Iranian 'Bats' was the monitoring of Soviet military communications and electronic operations. Of course, the service also gathered intelligence on all of Iranian's other neighbours, primarily Iraq. Indeed, by 1979, the Electronic Intelligence Squadron unit was reinforced through the addition of two similarly modified Boeing 707-3J9C tankers: these not only received extensive COMINT/SIGINT/ELINT equipment, but also side-looking airborne radars (SLARs). In turn, two of its (R)C-130Hs were stripped of

A still from a pre-war video showing a Boeing 707-3J9C tanker providing in-flight refuelling to a pair of Iranian F-14As. (Tom Cooper Collection)

their special equipment and returned to regular units, to serve as transports.

Reportedly, in the chaos after the fall of the Shah, some of the 'super-secret' equipment installed in the ground stations or the *Khoofashs* was disabled by operatives of the NSA. How much truth there is to this remains unknown: what is certain is only that after the Iraqi invasion, the Iranians took some time to restore FASHA and the two (R)C-130Hs, two Boeing 707-3J9Cs, and two Aero Commander 690Es to working condition – and that the IRIAF and IRIN documentation mentions their first operations in the war against Iraq in early January 1981. At the time, they were tasked with the following duties:

A) Detecting and tracking the work of Iraqi SAM sites, recording and reporting their positions;
B) Collecting SIGINT from Iraqi radar stations and radar-supported anti-aircraft artillery positions deployed in occupied western Iran, and in eastern Iraq;
C) Collecting COMINT and SIGINT about all operations of the IrAF;
D) Collecting COMINT and SIGINT related to Tupolev Tu-16 and Tu-22 bombers of the IrAF in particular; and
E) Collecting all possible intelligence on operations of Iraqi aircraft codenamed 'Ghamar', 'Hetal', and 'Taer' [the nature of which was never disclosed and remains unknown].[8]

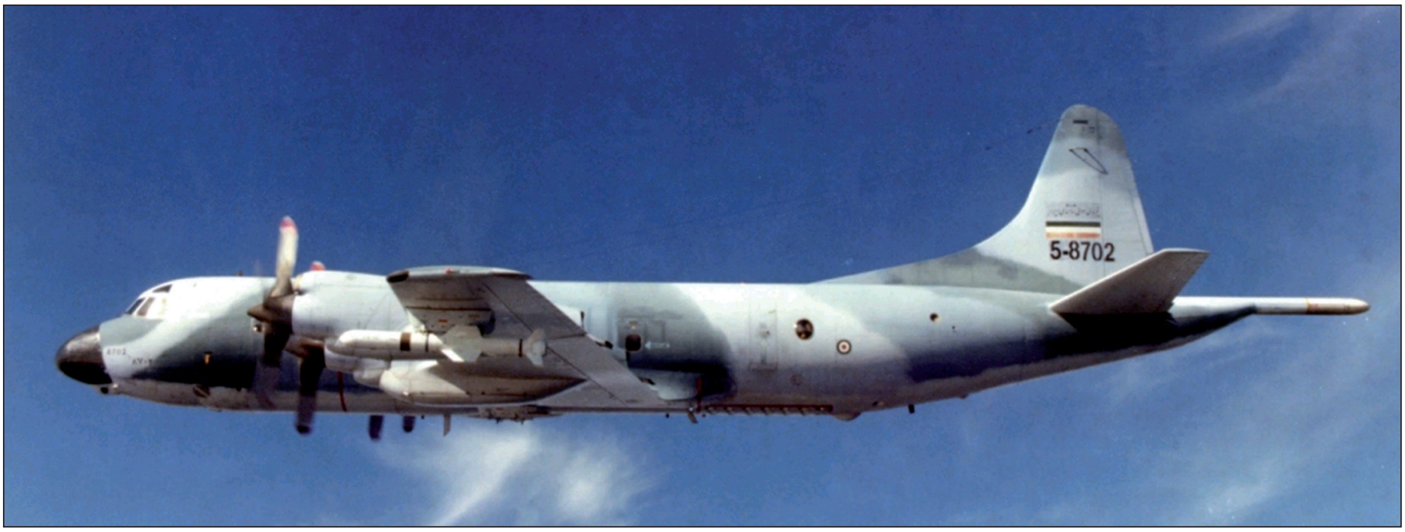
Entirely unknown – even to most of the people directly involved in the operations of FASHA at the time, not to mention anybody in Iraq – was the fact that, amongst others, FASHA and its *Khoofashs* were equipped with COMINT-gathering equipment capable of intercepting and decrypting in real time all the messages encrypted by cryptographic communication machines (used for voice and digital communication alike) made by the Swiss company Crypto AG.[9]

Crypto AG was a venerable company with an excellent reputation, and through the 1960s and 1970s its machines were successfully marketed and sold to dozens of military services around the world, including both Iran and Iraq, where they were used by all branches of the armed forces. What neither Iranians nor the Iraqis knew was that the owner of the company had a decades-long history of ties to the NSA. Indeed, in June 1970, Crypto AG was secretly bought by the CIA and the West German intelligence service *Bundesnachrichtendienst* (BND). Henceforth, and under Operation Rubikon, the NSA and BND – in cooperation with their British counterpart, Government Communications Headquarters (GCHQ) – rigged all the machines made by Crypto AG and sold to third parties to ensure their full capabilities would never be used, and that all messages encrypted by them could be read by friendly intelligence services. As will be seen below (and especially in Volume 3 of this mini-series), for most of the war, FASHA was capable of reading all the Iraqi military communications in real time.[10]

Orions

Another IRIAF-operated type deployed intensively in support of Operation Crocodile was the Lockheed P-3F Orion maritime patrol aircraft. Because of the revolution of 1978–1979, the training of Iranian crews on this type was interrupted well before they had learned to use all of their equipment. However, in the emergency caused by the Iraqi invasion, the IRIAF scrambled to correct this: the crews completed their training in Iran using available operator and tactical manuals, all aircraft were made operational again, and the 71st Anti-Submarine Warfare Squadron began flying operational sorties in early 1981. Usually, P-3Fs operated from their home-base at TFB.7. However, whenever another caravan was about to start moving from Bandar-e Abbas, one of them would redeploy to TFB.9, thus stretching its range by a magnitude. While escorting convoys, Orions not only carried a liaison officer of the navy on board – usually somebody specialised in intelligence – but also conducted careful surveillance ahead of the ship formation. If all P-3Fs were down and in need of maintenance, their role was assumed by Lockheed C-130E or C-130H Hercules transports of the 72nd Transport Air Squadron, also home-based at TFB.7. However, Orions were much better equipped for reconnaissance purposes than the transports were. Amongst others, they carried systems enabling them to eavesdrop on Iraqi radio communications: this was interpreted by both IRIAF and IRIN intelligence officers on board the aircraft and forwarded to the headquarters of TF.421 in real time.

This combination of naval and aerial assets meant that almost every single Iraqi attempt to attack one of the Iranian caravans was detected in time, and – provided their air defence systems were operational – the Iranians were in a position to offer fierce resistance.



Out of six P-3Fs eventually acquired by Iran, only this example – serial number 5-8702 – was modified to deploy AGM-84A Harpoon anti-ship missiles before 1979. The aircraft saw heavy utilisation during the stand-off with the US Navy, caused by the occupation of the US Embassy in Tehran, in 1979-1980, and early during the war with Iraq. It crashed while returning to its home-base outside Shiraz, on 15 February 1984. (USN).

Problems with Discharging

Obviously, operations Crocodile and Torpedo-2 were of critical importance for the Islamic Republic of Iran: they represented its literal 'lifeline': imports made certain that Iran could earn and continue fighting, which in turn meant it could continue exporting oil.[11]

Before long, the volume of resulting traffic rose almost to pre-war levels and Tehran began experiencing problems with finding shipowners ready to send their vessels to ports north of Bandar-e Abbas. On 24 September 1980, Tehran reacted with a public promise that it would establish supremacy at sea in the Persian Gulf, and keep the shipping lanes to Bushehr and Bandar-e Khomeini open for traffic – exactly as demanded by the headquarters of Task Force 421 (the command node controlling all naval operations, and all the naval movements along the Iranian coast, regardless what military branches or civilian bodies were involved) – in a letter to the headquarters of the 1st Naval Region, in Bandar-e Abbas, from the same date:

1) There are currently two commercial ships docked at Bandar Imam Khomeini. Their unloading will be completed soon and they will leave this port.
2) More than 50 commercial ships with various goods are waiting at Bandar-e Abbas for their turn to unload cargo. Their number is increasing every day. Limitation of equipment in Bandar-e Abbas mans that most of them are there to stay for more than two or three months. While at the anchorage, they are receiving the demurrage money from the Iranian authorities. Attempts to unload them with tugboats, barges, or smaller cargo ships – mostly dispatched for this purpose from BIK – yielded no fruits.
3) A number of commercial ships with cargo for Iranian ports have meanwhile unloaded in the ports of the United Arab Emirates.

The Islamic Republic of Iran and the Islamic Republic of Iran Navy have promised to establish their supremacy at sea and keep all lanes to Bushehr and BIK open and under control. For this purpose, the navy recommends the following:

A) Establishing a working group or a commission composed of representatives of the Ministry of Economy, Ministry of Commerce, Ports and Maritime Organisation, Ministry of Transportation, Islamic Republic of Iran Shipping Lines, and the Customs, to organise the program of unloading and distributing vital goods from different ports, as fast as possible, and then to control and supervise the implementation of this program.
B) The working group or commission should provide facilities, tugboats, barges, small cargo ships, port services, and personnel to ports depending on level of activity, with the aim of maximising the utilisation of the ports.
C) Ships belonging to the Islamic Republic of Iran Lines carrying cargoes easier to unload should be sent to Bushehr and BIK. This is going to draw attention of other owners and encourage them to send their ships to the same ports – as was done by the tankers *Shirvan* and *Tabriz* at Khark.
D) Once discharging activities in Bushehr and BIK are intensified, it can be expected that commercial ships from other countries are going to send their ships to these ports, too.
E) Permission should be granted for dhows, wooden motor launches, and motor barges to resume transportation of goods from ports in southern Iran to Bushehr and BIK. The Ministry of Interior of the governorates Hormozgan and Bushehr should make this decision public, so that the local authorities can provide the necessary facilities.[12]

Idyll of Early 1981

Under the impression of the general chaos prevailing in much of Iran since 1978, but especially in the light of the sad fate that befell dozens of neutral merchant ships blocked inside the Shatt al-Arab waterway and the ports of Basra and Khorramshahr due to the Iraqi invasion, foreign shipowners were unimpressed. The majority continued refusing to send their vessels further north than Bandar-e Abbas, and demanded that these be unloaded on the spot, even if knowing the port was too small for the resulting volume of traffic. It took the IRIN not only running Operation Morvarid (27–28 November 1980, see Volume 1 for details), but also successfully escorting several caravans to BIK and Mahshahr to start changing their minds – and even then, the majority of commercial vessels escorted to the ports in the north through October, November and December 1980, all belonged to the Islamic Republic of Iran Shipping Lines (IRISL), and had Iranian crews. It was in this fashion that the Iranians managed to move the bulk of troops, heavy armament, ammunition and supplies necessary for the first big counteroffensive organised by the Iranian armed forces in this war. Planned and organised in great haste, this offensive – Operation Howeyzeh – was initiated on 5 January 1981, during a short break in the rainy season. However, because the Iraqis were forewarned by their COMINT, and due to poor planning and execution, it failed. Nevertheless, it resulted in a major battle that kept both the armed forces of Iran and Iraq preoccupied for most of that month. Ironically, this prolonged the quiet period for the IRIN, enabling it to bring additional convoys to BIK and Mahshahr.

Multiple documents in the IRIN archives bear witness to how quiet the situation in the northern Persian Gulf was through the last days of 1980 and early 1981. For example, on 31 December 1980, the IRIN reported the following ship traffic on the Iranian side of the Persian Gulf:

Oil tankers:
- *Ata*, Turkish flag, left Khark Island at 08.30 underway out of the Persian Gulf
- *Camden*, British flag, left Khark at 12.30, underway out of the Persian Gulf
- *Castnarwal*, left Sirry for Khark, at 12.30
- *Venus*, Greek flag, loading at Khark started at 11.05
- *Maron*, left Mahshahr at 19.00
- *Yannism*, Greek flag, anchored at Khark at 18.00

Merchants:
- *Beodor*, Cypriot flag, anchored at Bushehr at 19.30 (due to flooding of the right side: accompanied by a tug from the Port Authorities)
- *Shahdat*, Iranian flag, left the Abbassi anchorage (old port) with load for the BIK, at 17.00
- *Iran Qadr*, Iranian flag, arrived at Abbassi anchorage from Sharjah, at 12.30
- *Maldive Courage*, Maldives flag, entered Abbassi anchorage from Kuwait[13]

No News in the West

The situation also remained quiet through the following month. Indeed, on 25 January 1981, the Operations Department of the IRIN reported to Task Force 421 that the movement of tankers up and down the Persian Gulf and passing the Hormuz Straits was completely free, almost without any restrictions. The sole difference was that the ships underway to loading points in Iran tended to approach along a route outside the 'war zone' declared by the authorities in Tehran: only if approaching shallow points would some ships make short runs through the war zone.[14] Unsurprisingly, TF.421 began only demanding all the tankers to announce their passage through the combat zone, and any ships already in Iranian ports to report their departure 48 hours in advance, so their movement could be announced to 'all the interested organisations.'[15]

Finally, the IRIN found an opportunity to deal with several merchants carrying 'special' cargoes: ammunition and arms acquired abroad. For example, on 28 January 1981, the Operations Department informed TF.421 about the arrival of a ship carrying arms for Iran:

> 1.) Situation
> A) Commercial ship *Iran Bessat*, owned by the Islamic Republic of Iran Shipping Lines, carrying military equipment for Iran, will arrive in Bandar-e Abbas within the first 10 days of March, this year.
> B) Because Iraq is at war with Iran, it is possible that the mentioned ship has been detected and Iraq is going to try destroying it using naval and air units, so also those in neighbouring countries along the western side of the Persian Gulf. Because of this, it is necessary to escort the ship to Bandar-e Abbas.
> …
> 2.) Mission
> The commander of TF.421 has to ensure a safe and timely arrival of the said ship to Bandar-e Abbas by using forces under his command.
>
> 3.) Execution
> A) P-3F should fly maritime patrols during the day.
> B) at the meeting point (see Paragraph C), naval personnel will be transferred to the mentioned ship for the purpose of coordination.
> C) The meeting point will be at the coordinates 24° 55' N and 058° 00' E.
>
> 4.) Coordination
> A) In coordination with the Ports and Shipping Organisation, the berth for the mentioned ship is to be determined as soon as it arrives in Bandar-e Abbas, and the ship is then to be promptly docked (stopping at anchorage is not permitted).
> B) If air support is necessary, the coordination should be made with the nearby air base regarding provision of F-4 aircraft and an air liaison officer.
> C) The P-3F aircraft will operate in the region under the command of the 1st Naval Region and based as necessary.
> D) The responsibility for protecting the ship and her cargo during unloading is the responsibility of the commander of the 1st Naval Region. During the transit after the unloading, it will be the responsibility of the army.
> E) All the related correspondence is to be prefixed with SADAT.
> F) The Deputy of the Army Logistics is responsible for quick unloading and distribution of the cargo around the country.[16]

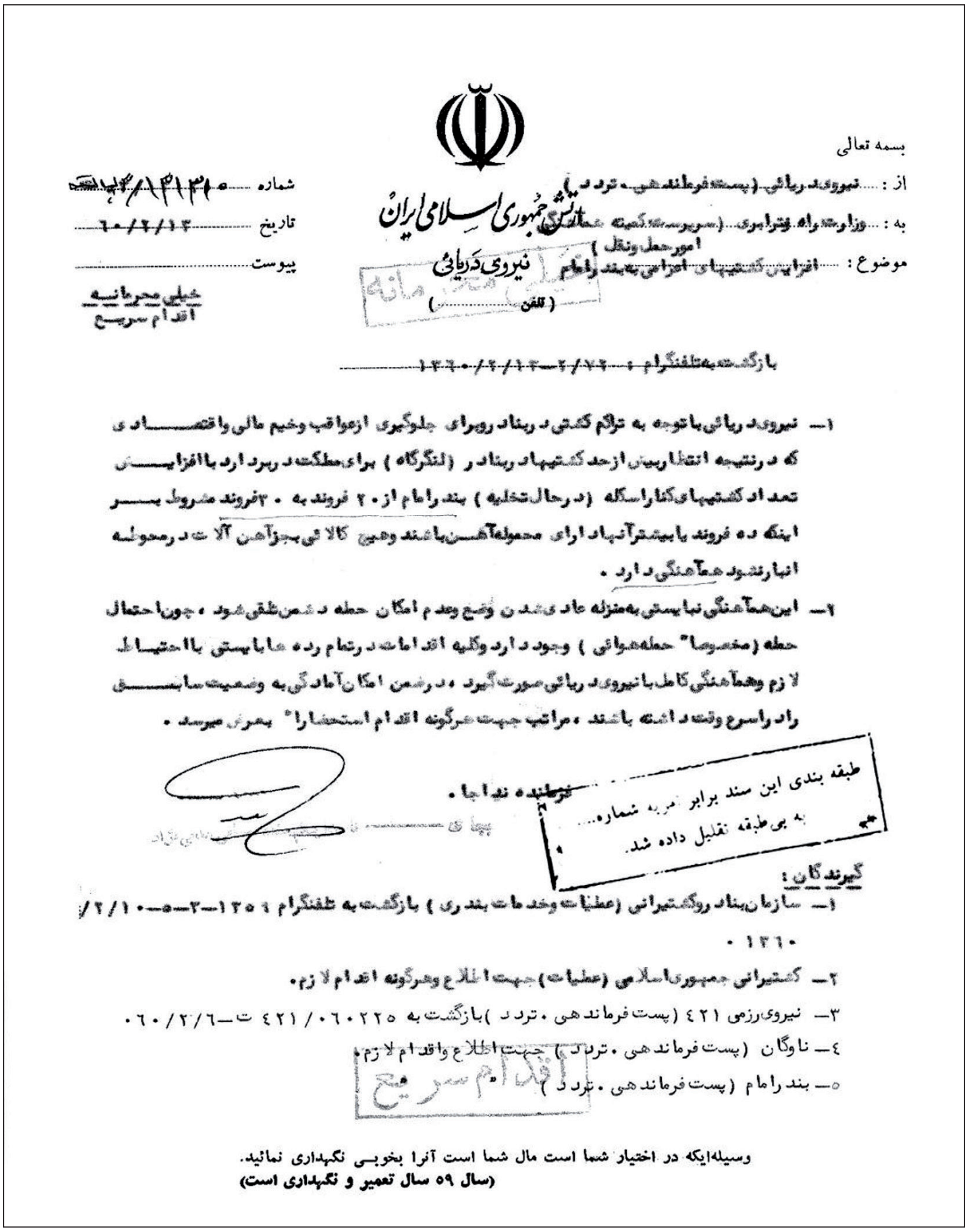
Traffic Jam

As observed above, the calm period also had its negative repercussions. As Tehran rushed to buy ever more equipment and machinery necessary to rebuild its oil industry, began moving troops and military supplies from bases in the south and east of the country by ship to Khuzestan, and re-launched imports of arms and ammunition, the fact that no ships were attacked anywhere around the Persian Gulf in early 1981 – indeed: that the Iraqis had failed to attack even one vessel underway in the IRIN convoys for BIK and Mahshahr – gradually led to a dissipation of tensions between shipowners and seafarers worldwide. Before long, many became willing to accept the risks associated with voyages on the fringes of the battlefield. Therefore, after a period of experiencing problems with finding vessels to transport their imports, through February and March 1981, the Iranians began experiencing a constantly growing problem with ever more ships arriving at the Bushehr anchorage to wait for passage in the northern direction. Rather unsurprisingly, in a report filed on 3 February 1981, the commander of the IRIN, Captain Bahram Afrazli, and commander of TF.421, Captain Mustafa Madani Nejad, ordered an increase in the number of ships included in every convoy to BIK from 20 to 30, and dutifully advised the civilian authorities:

> 1.) The navy, considering the density of ships in the ports, and to prevent the dire financial and economic consequences for the country as a result of excessive waiting for ships in the ports, is authorising an increase in the number of ships [being unloaded] at the quayside of Bandar-e Imam to 20, provided that 10 or more have iron cargo only and no goods except for iron are stored in the open.
> 2.) The situation in the port should never be considered as normal, because there is a permanent possibility of an enemy attack (especially an air attack). Therefore, all procedures should be pursued with all the necessary caution, always in full coordination with the navy.[17]

Eventually, TF.421 was not granted the necessary permission. Arguably, through February, March and early April, it managed to escort over 100 vessels to BIK and Mahshahr, without any particular problems, but always in small convoys of a handful of vessels. Unsurprisingly, the anchorages in Bandar-e Abbas and Bushehr continued filling with foreign vessels carrying imports to Iran, and thus on 26 April 1981, Afzali requested that TF.421 check with the Ministry of Roads and Transportation if there might be a way to accelerate the rate of unloading ships at BIK: 'Perhaps using trucks [in addition to trains] to transport the unloaded goods would enable the ships to be unloaded quicker, thus not wasting time while on the quayside? This could enable us to increase the number of ships inside the port to 25 or even 30?'[18]

Although busy increasing the traffic volume and accelerating the discharging, Madani Nejad continued demanding that the IRIAF bolster protection. Therefore, two days later, on 28 April 1981, the headquarters of the 1st Naval Region ordered the headquarters of TFB.9: 'In order to support naval units at sea against possible threats, one of four fighter aircraft dedicated to this task, must be kept on alert so to be capable of scrambling within 15 minutes, any time during the day. Please, order the necessary measures.'[19] Furthermore, the navy insisted on the IRIAF keeping two F-14As on station.



بسمه تعالی

شماره ۱۲۱۳۱۰/۲پ‌ت
تاریخ ۶۰/۲/۱۳
پیوست

خیلی محرمانه
اقدام سریع

ارتش جمهوری اسلامی ایران
نیروی دریائی
(تلفن ....)

خیلی محرمانه

از : نیروی دریائی (پست فرماندهی ـ تردد)
به : وزارت راه وترابری (سرپرست کمیته هماهنگی امور حمل ونقل)
موضوع : افزایش کشتیهای اعزامی به بندر امام

بازگشت به تلفنگرام ۰۰۲/۷۲ـ۲/۱۳ـ۱۳۶۰/۲/۱۳

۱ـ نیروی دریائی با توجه به تراکم کشتی در بنادر و برای جلوگیری از عواقب وخیم مالی و اقتصادی که در نتیجه انتظار بیش از حد کشتیها در بنادر (لنگرگاه) برای تخلیه در بر دارد با افزایش تعداد کشتیهای کنار اسکله (در حال تخلیه) بندر امام از ۲۰ فروند به ۳۰ فروند مشروط بر اینکه ده فروند یا بیشتر آنها دارای محموله آهن باشند و هیچ کالائی بجز آهن آلات در محوطه انبار نشود هماهنگی دارد.

۲ـ این هماهنگی نبایستی به منزله عادی شدن وضع و عدم امکان حمله دشمن تلقی شود، چون احتمال حمله (مخصوصاً" حمله هوائی) وجود دارد و کلیه اقدامات در تمام رده ها بایستی با احتیاط لازم و هماهنگی کامل با نیروی دریائی صورت گیرد، در ضمن امکان آمادگی به وضعیت سابق را در اسرع وقت داشته باشند، مراتب جهت هرگونه اقدام استحضاراً" بعرض میرسد.

فرمانده نداجا.

طبقه بندی این سند برابر [illegible] شماره...
به بی‌طبقه تقلیل داده شد.

گیرندگان :
۱ـ سازمان بنادر و کشتیرانی (عملیات و خدمات بندری) بازگشت به تلفنگرام ۱۲۰۱ـ۲ـ۵ـ۰۰۱/۲/ ۱۳۶۰.
۲ـ کشتیرانی جمهوری اسلامی (عملیات) جهت اطلاع و هرگونه اقدام لازم.
۳ـ نیروی رزمی ۴۲۱ (پست فرماندهی ـ تردد) بازگشت به ۴۲۱/۰۶۰۲۲۵ ت ـ ۶۰/۲/۶.
۴ـ ناوگان (پست فرماندهی ـ تردد) جهت اطلاع و اقدام لازم.
۵ـ بندر امام (پست فرماندهی ـ تردد)

اقدام سریع

وسیله‌ایکه در اختیار شما است مال شما است آنرا بخوبی نگهداری نمائید.
(سال ۵۹ سال تعمیر و نگهداری است)

A copy of Madani-Nejad's order from 3 February 1981. (IRIN Document No. 121310/2PT found in the SDDCN)

Basu's Lonesome Outpost

Preoccupied by major land battles in Khuzestan and further north, and the IRIAF's massive onslaught on its oil industry, Baghdad was slow to react to the Iranian convoys. Certainly enough, even if the exact date remains unknown, the main Iraqi military intelligence agency – the General Military Intelligence Directorate (GMID) – eventually learned of Operation Crocodile. However, after suffering a string of losses whenever trying to engage the better-armed warships of the IRIN, the Iraqi Navy lacked the means to act. Indeed, the losses it suffered during Operation Morvarid were sufficient to keep the Iraqis away from the waters of the northern Persian Gulf for nearly a year. It was only in the late summer of 1981 that they sent troops of the 77th Naval Infantry Brigade back to the wrecks of the Mina Khowr al-Amiyah and Mina al-Bakr offshore terminals, to reoccupy these and commence repairs.

Meanwhile, it left was to the IrAF to try keeping the IRIN and the crucial ports in the northern Persian Gulf under pressure. Sadly, very little is known about its related operations, except that most of these were launched from Wahda AB, 45km south-west of Basra (originally constructed as Royal Air Force Shaibah).

Just as the Iraqi Navy was 'geographically isolated' – i.e. distant – from Baghdad, so too was Wahda AB. In turn, this meant that its commanders enjoyed a relative freedom in regards of how they conducted their operations. However, contrary to the Iraqi Navy, the staff of the southernmost Iraqi air base included at least one very enterprising officer. As of September 1980, its Deputy Commander and Director Operations, was Colonel Salim Sultan al-Basu. A graduate of the Iraqi Air Force Academy in 1962, this former Su-7 and Su-20 pilot (and veteran of the wars with Israel in 1973 and the Kurds in 1974–1975), was a strong proponent of air power as an independent branch, and also an officer that understood the importance of striking at Iranian logistics. Obviously, Basu was unable to act entirely according to his own ideas early during the war. Correspondingly, early operations of the Wahda-based No. 109 Squadron, equipped with Su-22s, were 'rather unimaginative.' On 22 September 1980, three flights of four fighter-bombers bombed the runways of TFB.6 during the opening Iraqi air strike: however, only minutes later, four F-4Es led by Captain Sepidomooy-Azar from the Bushehr-based 61st Tactical Fighter Squadron (TFS) returned the favour by bombing Wahda AB.[20]

However, Basu soon began changing this. As described in Volume 1, during the following days No. 109 Squadron also bombed the port of Bushehr, damaging a corvette of the IRIN as it was undergoing maintenance in dry dock. Arguably, early on, Basu was too low in the chain of command to organise better cooperation with the Iraqi Navy. Thus, when the latter launched its early attempts to disrupt the flow of Iranian convoys to BIK and Mahshahr, it was left on its own. Unsurprisingly, in September 1980, its Project 205 Moskit FACs – better known under their ASCC/NATO reporting name 'Osa' – managed to sink only two light vessels of the IRIN, while suffering numerous setbacks. Whether aware of this or not, Basu soon began changing targets for No. 109 Squadron. For example, on 29 September, four Su-22s led by Major Faysal Habbou attempted to bomb the dockyards of BIK. To Iraqi surprise, the formation was intercepted by a pair of F-14s and quickly lost two jets, the pilots of which ejected safely and were captured by the Iranians.[21]

Slightly more successful was the next air raid by No. 109 Squadron: on 12 October 1980, two Su-22s led by Major Tayyar bombed the port of Bandar-e Khomeini again. While the results of this mission remain unknown, Tayyar – now advanced in rank to lieutenant colonel – was also in charge of a bigger attack on BIK, flown by two formations of his unit, on 7 January 1981. The first of these reached Bandar-e Khomeini unmolested: the pilots claimed multiple hits on the dockyards, and even the destruction of a (British-made) Rapier SAM site protecting the port. However, the second Iraqi fourship was intercepted by a pair of F-14 Tomcats well before reaching its target. According to Iranian reports, three 'MiGs' – which were actually Su-22s of No. 109 Squadron – were shot down by a single AIM-54, because they flew in such a tight formation that when the missile detonated, it caused catastrophic damage to all of them. Later the same month, on 29 January 1981, another of No. 109 Squadron's Sukhois was claimed as shot down by an AIM-54 shortly after two jets of this type crossed the coast of the northern Persian Gulf in a southern direction in what was the longest-ranged Phoenix-kill up to that date: 54 kilometres. After this setback, it took Basu more than two months before sending his fighter-bombers to this area again – and even then, he did so only once he was appointed the commander of Wahda AB. This enabled him to start organising countermeasures against Iranian F-14s. For example, from January 1981, FASHA began reporting that the Iraqis were deploying helium-filled balloons carrying radar reflectors with the aim of disturbing the work of IRIAF interceptors. The Iranians later concluded that their F-14 crews wasted a number of precious AIM-54A Phoenix long-range air-to-air missiles on such 'targets.'[22]

Directives Azhdar-2 and Temsah

Through the period between February and July 1981, while convoy operations were still a relatively new occurrence, the IRIN ran them almost every two or three days. Most caravans consisted of only four or five ships. Obviously, this put immense strain both on the warships of the navy and the combat aircraft of the air force. Before long, the IRIAF began complaining that the number of fully mission capable F-14As was rapidly dwindling, and it could not continue maintaining the current tempo of operations for much longer. In attempt to lessen the burden upon everybody involved, TF.421 agreed to limit the top cover to one F-14A and one F-4E.[23] Meanwhile, it attempted to arrange with the IRIA to deploy the artillery of its 77th Division – especially M110 203mm howitzers – close to Ras al-Bisheh, the southern tip of the Faw Peninsula. The commander of the 77th agreed with this request but after only a few days began expressing his concerns: not only that he was constantly short on ammunition, but frequent caravan operations meant that his artillery could not support other elements of this division much too often. Indeed, the commander in question requested that the IRIN provide 105mm guns and artillerists that could help him. Having no such armament, the navy had to politely refuse.[24]

Another early idea – though one that was applied in a more successful fashion – was for caravans to be protected not only by interceptors of the IRIAF, but also by Bell 206 Jet Ranger scout helicopters and Bell AH-1J Cobra attack helicopters of the Islamic Republic of Iran Army Aviation (IRIAA). Correspondingly, one 206 and two or three AH-1Js were deployed in the BIK area and flew patrols over Khowr al-Moussa whenever a convoy was underway, whether bound north or south. Over time, the activity of these helicopters was to prove highly effective in forcing the crews of Iraqi Aérospatiale SA.321GV Super Frelon helicopters to launch their Aérospatiale AM.39 Exocet anti-ship missiles only from near-maximum range: either from Ras al-Bisheh, or even over Bubyan Island, in Kuwait.

That said, a major stumbling block in regards of organisation and planning of convoy operations became the issue of the two Iraqi offshore loading terminals at the mouth of Khowr Abdallah, south-east of al-Faw: Mina Khowr al-Amiyah and Mina al-Bakr. Although both were badly damaged during Operation Morvarid, and there was no indication of any Iraqi use of them for months after, the IRIN was insistent on the IRIAF keeping these constantly under pressure through repeated air strikes. However, not only the command of the air force in Tehran, but especially that of TFB.6, had no understanding of such requests and was rarely responsive to them, even once it became obvious that whenever F-4Es of the IRIAF did attack the two platforms, the Iraqis rarely attacked convoys.[25]

In the light of these differences, the original plan for Operation Crocodile was reworked and on 31 July 1981, two new plans came into being:

- *Azhdar-2* (Torpedo-2): escort of convoys from Bushehr to BIK and Mahshar, and back, by day; and
- *Temsah* (Crocodile): escort of convoys to BIK and Mahshahr, and back, by night.

The command of the IRIN finally granted permission for TF.421 to start organising bigger convoys instead of constantly running smaller ones: for the rest of 1981, these regularly included 15 ships, and sometimes up to 40 ships (with 20 in northbound, and 20 in southbound convoys). Moreover, the decision was taken that northbound and southbound convoys would pass the most dangerous part of their trip – the sector between Buoy No. 23 (in the north) and Buoy No. 2 (south), at the southern entrance to Khowr al-Moussa – at the same time, with empty ships travelling on the more-exposed western side. In similar fashion, TF.421 always took care to have tankers travel on the safer eastern side of every caravan. Other measures stipulated by the same plan included the following:

- Every convoy was to receive support from two or three AH-1Js of the IRIAA. For their operations in support of the caravans, a suitable forward operating base (FOB) was created at Boneh Island, in Iranian Bay, on the south-western side of Khowr al-Moussa. The same FOB was used by helicopters of the IRINA.
- Before every convoy, helicopters were to fly reconnaissance along the caravan's route, and search for possible threats.
- As soon as any caravan reached the area between Buoys 23 and 2, the artillery of the 77th Division of the IRIA was to shell the Ras al-Bisheh area for four hours.
- At the same, time, AGM-65 Maverick-armed F-4Es from TFB.6 were to strike Mina Khowr al-Amiyah and Mina al-Bakr.
- F-14 interceptors of the IRIAF had to be above the caravans whenever they entered the zone between Buoy Nos. 23 and 2. If it needed in-flight refuelling, the Tomcat must be replaced by another F-14, or at least an F-4E.
- While the caravan was underway between Buoy Nos 23 and 2, warships of TF.421 had to be ready to cope with a threat of the Iraqi Osa missile boats, either from the direction of Khowr Abdallah or from Shatt al-Arab: destruction of the

> Iraqi missile boats had an absolute priority and they had to be destroyed, regardless the cost.[26]

As time would show, regardless of good planning, in all too many cases different elements and factors not directly influenced by TF.421 were to let down the unit responsible for this vital effort. Whenever this happened, the consequence was the same: losses.

First Tomcat Loss

The wear upon IRIAF F-14As in particular began showing its effects not only in the form of the slowly decreasing rate of availability, but also in the form of accidents and that began well before the convoy operations were reorganised as described above. For example, on 14 April 1981, during an in-flight refuelling operation from a Boeing 707-3J9C tanker north of Khark, the F-14A crewed by Captain Jafar Mardani and Lieutenant Gholam Hossein Abdolshahi fell into an inverted spin and crashed. Shocked by the loss, the IRIAF requested that the IRIN launch a search and rescue operation. Around 15.30hrs (only four minutes after receiving the call for help from the air force), a single AB.212ASW took off from TFB.6: about an hour later, its crew reported having recovered the bodies of the crew in the Genaveh area. Both were dead.[27]

Basu is known to have sent Su-22s from No. 109 Squadron over the northern Persian Gulf on 27 April 1981 again, when his fighter-bombers were detected while approaching Mina Khowr al-Amiyah at a very low altitude. According to claims from Baghdad – essentially copied by the Western media, and even a few Iranian sources without further cross-examination – they had bombed the Sorush offshore terminal (formerly Sirous). However, IRIN reports are indicative of two pairs of Iraqi fighter-bombers, and both of these aborting their mission as soon as they realised that their approach had been detected by the Iranians and thus well before reaching anything worth mention. Around 14.10hrs, the crew of an ASH-3D Sea King patrolling the area between Mina Khowr al-Amiyah, Mina al-Bakr, and Nowruz, reported the appearance of two Sukhois to the HQ of TF.421, which forwarded this report to the HQ of 2nd Naval Region. Fifteen minutes later, at 14.25hrs, the La Combattante II/Kaman-class missile boat *Falakhon* (P226) then reported the appearance of two Sukhois and advised the helicopter to descend as low over the sea as possible. The ASH-3D then made a safe landing at the Abuzar offshore platform. Eventually, the Iraqis jettisoned their empty drop tanks near the same platform, turned north and disappeared in the direction of Iraq. In other words: although free of threat from the IRIAF, the Iraqi pilots neither attacked any of the Iranian platforms, nor the missile boat, and even less so the lonesome Sea King helicopter.[28]

Captain Jafar Mardani, pilot of the F-14A Tomcat that fell into an inverted spin and crashed near Genaveh on 14 April 1981. The aircraft came down on the beach, and thus an investigation of its wreckage was possible. This revealed that the exhaust nozzles of one engine were fully closed, and those of the other fully open – which was typical for Tomcats that fell into a spin. Nevertheless, the Iraqis variously claimed Mardani's jet as shot down by their MiG-21s or MiG-23s, while various Iranian sources claimed it as an 'own goal': i.e. shot down by the MIM-23B I-HAWK SAM site permanently deployed at Kharko (the northern, smaller island of the Khark archipelago). (Tom Cooper Collection)

2

THE END OF THE IDYLL

The sporadic nature of the Iraqi attacks on BIK and offshore platforms during the first half of 1981 should not be misunderstood as a lack of interest in curbing the flow of Iranian convoys. On the contrary, not only at Wahda AB, but especially in Baghdad, serious efforts to enable operations against the caravans were already in full swing. The principal problem was that in reaction to the Iraqi invasion of Iran in September 1980, both of Iraq's strategic partners – France and the Union of the Soviet Socialist Republics (USSR; colloquially 'Soviet Union') – stopped all deliveries of arms and ammunition. In a rush to find an alternative source of weapons and ammunition, Baghdad placed an order for two batteries of Nanchang Aircraft Manufacturing Company HY-2 Silkworm (ASCC/NATO reporting name 'CSS-N-3 Seersucker') anti-ship missiles. Based on the Soviet-designed P-15 Termit missile – which was already in service on Project 205 Moskit FACs of the Iraqi Navy – this was a hefty weapon that later on was to prove deadly. However, the first HY-2s arrived in Iraq only in 1982.

Sea Tigers and Super Frelons

When Paris then re-launched arms deliveries to Iraq in April 1981 (under severe pressure not only from Baghdad, but also from several other Arab governments, which also began paying for some of the arms ordered by Iraq), the Iraqis placed an order for three Thomson-CSF TRS.3004 Sea Tiger E/F-band (2-4GHz) coastal surveillance radars. At least according to their version, when deployed on the Faw Peninsula, these should have proved capable of tracking all traffic up and down the Iranian coast to the Bushehr anchorage.[1]

Something similar was the case for Aérospatiale SA.321 Super Frelon helicopters acquired from France. As the unit operating them, No. 101 Squadron, was working up between 1977 and 1979, a total of 12 of were delivered, but two were written off in different accidents. Correspondingly, Baghdad placed an order for two replacements: while one of these arrived in 1979, the delivery of the other – and the 60 Aérospatiale AM.39 Exocet anti-ship missiles ordered to arm them – was delayed to 1981. Even then, another Super Frelon – serial number 189 – crashed on 4 August 1981, and

Photographs of SA.321GV Super Frelons of No. 101 Squadron of the Iraqi Navy after their delivery to Iraq remain extremely rare. This is one of the exceptions, showing an anonymous example as parked at Umm Qasr AB. Notable is the application of a double set of national markings (‘triangles’) on the side of the cabin. (Ali Altobchi collection)

had to be written off. Nevertheless, the unit was worked up and began flying operational sorties in May.[2]

Iraqi COMINT and SIGINT Assets

Another major development in Iraq in 1981 was the rapid growth of the Directorate of Technical Equipment. Established in the mid-1970s and specialised in COMINT and SIGINT, originally, this was a small department chronically short on equipment and trained personnel, and primarily responsible for analysing intelligence collected by Soviet-made Type P pods for electronic intelligence gathering (ELINT). These were acquired in 1975 and operated by a flight of MiG-21R reconnaissance jets of No. 70 Squadron, IrAF. However, thanks to the cooperation with France and the Iraqi order for Dassault Mirage F.1 interceptors and fighter-bombers (Project Baz) – and the preparedness of the government in Paris to sell not only all the associated equipment, but even some of its most advanced COMINT and SIGINT systems, and to train the Iraqi personnel in maintenance and operation of these at the Higher Electronic Warfare School in France – the Directorate of Technical Equipment experienced a massive growth. In 1981 it was raised to the corps level and subjected to the direct control of the Logistics and Operational Branch of the General Headquarters (GHQ) of the Iraqi Armed Forces.[3]

The core of the Directorate was the battalion-sized Unit 114 (specialised in COMINT), and Unit 128 (SIGINT). Both came into being in summer 1980: a year later, the former unit is known to have been reorganised, and one of its companies received the task of intercepting radio traffic related to the naval operations along the Iranian coast. Much to their surprise, before long the Iraqis discovered that they could acquire intelligence in abundance in this fashion: not because of the Iranian lack of discipline, but because crews of foreign vessels involved in Operation Crocodile tended to have lively radio exchanges with their owners – the international shipping companies.[4]

First Iraqi Exocet

Much of what happened next can only be deducted on the basis of available Iranian documentation. In mid-May 1981, new Iraqi assets were put to a sort of operational test. Unit 114 detected enough radio emissions to conclude that another convoy was about to commence moving from Bushehr to BIK and Mahshahr, and the crews of No. 101 Squadron prepared two of their Super Frelons with one Exocet each. On 20 May 1981, the TRS.3004 radar positioned at Ras al-Bisheh then detected the approaching caravan, and two helicopters were sent in to attack. As far as is known, at least one missile worked as advertised: it homed in on the Panamanian bulk carrier *Louise I*: as was to become common for Exocets, the weapon hit the hull below the bridge – the part of the ship with the biggest radar cross section – and detonated inside the machinery spaces. Although nobody was injured, the crew evacuated the vessel and was recovered by the Iranian freighter *Iran Rezvan*, while the ship then veered out of the dredged canal and sank near Buoy No. 10, south of the entrance to the Khowr al-Moussa. Keen to convince foreign owners to continue sending their ships to ports north of Bandar-e Abbas, Tehran then declared *Louise I* to have been sunk by Iraqi artillery – although the ship never approached to less than 50 kilometres from the nearest area controlled by the Iraqi army, and thus remained well outside the artillery range.

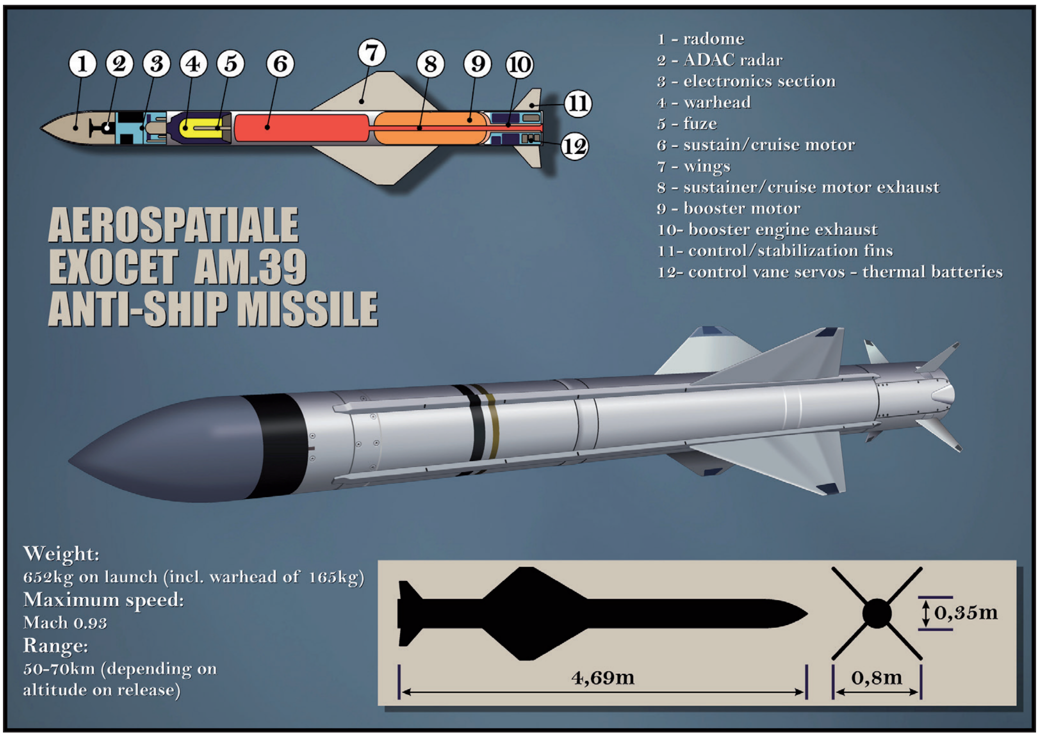
However, a subsequent investigation carried out by officers of the 3rd Naval Region, IRIN (headquartered in Bandar-e Khomeini), revealed that the *Louise I* was actually the first ship ever to be hit – and sunk – by an Iraqi-deployed AM.39 Exocet missile. Indeed, in 1983, the team in question cross-examined not only the evidence available about the loss of *Louise I* (on 20 May 1981), but also that about Iraqi attacks on *Iran Vahdat* (on 13 July 1981), *Iran Ehsan* (on 24 September 1981), and *Al Tajdar* (on 19 October 1981) – and then concluded, beyond doubt, that all were hit by AM.39 Exocets (for details on the other three cases, see the following chapters). Arguably, some of the FASHA SIGINT-gathering sites recorded the presence of Iraqi Navy Osas at around 11.00hrs on 12 July 1981 (in the case of attack on *Iran Vahdat*). However, the IRIN salvage teams found multiple pieces of an Exocet missile in the cargo hold of that ship (which was loaded with rice) and in the wreckage of all the other three vessels.[5]

Arguably, the results of this Iranian investigation stand in stark contrast to Iraqi claims, as well as to ‘widely accepted’ data provided in Western publications. As will be described further below, according to Baghdad, the first ever combat deployment of AM.39 Exocets took place only months later. Western sources usually consider the attack on *Al Tajdar*, on 19 October 1981, to be the first. However, the Iraqi claims in question are based on oral history and are not known as supported by official Iraqi documentation: the latter documentation seems to have been lost during the US-led invasion of Iraq in 2003 or taken away since. Moreover, they are based on recollections of Iraqi officers who were not even directly involved. Similarly, different Western sources were either using information from third or even fourth hand or referencing each other without the ability to cross-examine the data with the help of either Iranian or Iraqi documentation. While many of their conclusions have been proven as correct, as dozens of reconstructions of other Iraqi attacks based on Iranian documentation provided below are going to show, they were anything but infallible. Of course, this mystery could be solved if the documentation of No. 101 Squadron of the Iraqi Navy

Fire-and-Forget

The AM.39 Exocet was 4.69m long missile that weighed 652kg on launch. This meant that the installation of two of them was a hefty load for the SA.321 Super Frelon helicopter. That said, the Exocet was perhaps one of the most advanced anti-ship missiles of its time and relatively simple to deploy. The crew would read the range and course to the target from the ORB.31/32's display (both variants were capable of detecting a surface target with a radar cross section of 1,000 square metres over a range of 80km), and either enter corresponding coordinates into the missile's seeker head with the help of a small panel installed in the cockpit, or set the system on automatic, and let it feed the targeting data into the missile's seeker head on its own. The missile was then launched and, after descending about 50–70 metres below the helicopter, activated its solid-propellant engine, which was to power it for 110 seconds. As the Exocet continued towards the target, it would descend to an altitude between 2 and 10 metres above the waves – depending on programming by the crew, which usually depended on the sea state. At a distance of 12–15km from the target, the missile would activate its ADAC active radar-homing head: this would start its search with a sweep from left towards the right, and lock onto the first target from the left it detected. From that point onwards, the Exocet would 'skim' the sea surface: approaching at such a low altitude that it was very hard to detect against the background of interference from sea waves, and even harder to counter with any kind of countermeasures.

Overall, Exocet did not require the crew to actually see its target, nor need constant illumination by the radar of the helicopter releasing it: on the contrary, it was what became known as a 'fire-and-forget' weapon. Once launched, the crew was free to manoeuvre the helicopter as it wanted. Of crucial importance for such relatively large and slow-moving helicopters as Super Frelons – an attack with Exocet would be initiated from such a stand-off range that the SA.321 was impervious to most of the air defence systems in service in the Middle East at the time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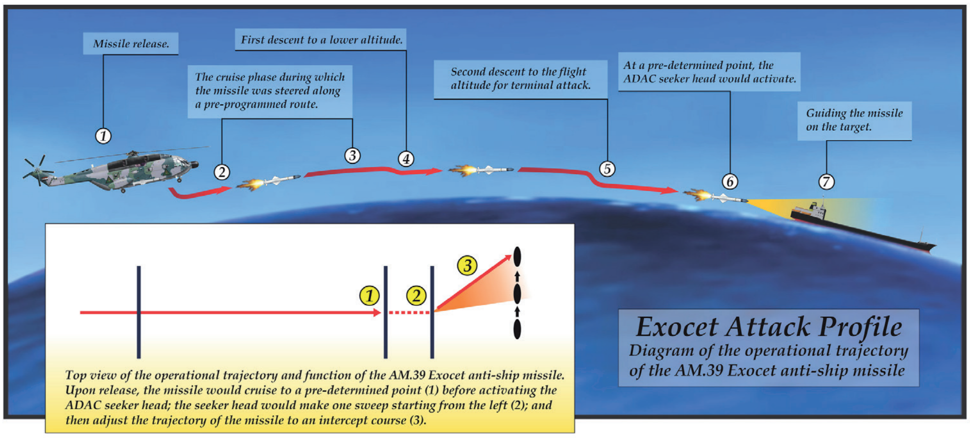
5
6
7
8
9
10
11
12
1 - radome
2 - ADAC radar
3 - electronics section
4 - warhead
5 - fuze
6 - sustain/cruise motor
7 - wings
8 - sustainer/cruise motor exhaust
9 - booster motor
10- booster engine exhaust
11- control/stabilization fins
12- control vane servos - thermal batteries
AEROSPATIALE
EXOCET AM.39
ANTI-SHIP MISSILE
Weight:
652kg on launch (incl. warhead of 165kg)
Maximum speed:
Mach 0.93
Range:
50-70km (depending on
altitude on release)
0,35m
4,69m
0,8m

A diagram showing the external appearance of the first sub-variant of the AM.39, its internal composition, dimensions and other important data. (Diagram by Anderson Subtil)


Missile release.
First descent to a lower altitude.
The cruise phase during which the missile was steered along a pre-programmed route.
Second descent to the flight altitude for terminal attack.
At a pre-determined point, the ADAC seeker head would activate.
Guiding the missile on the target.
1
2
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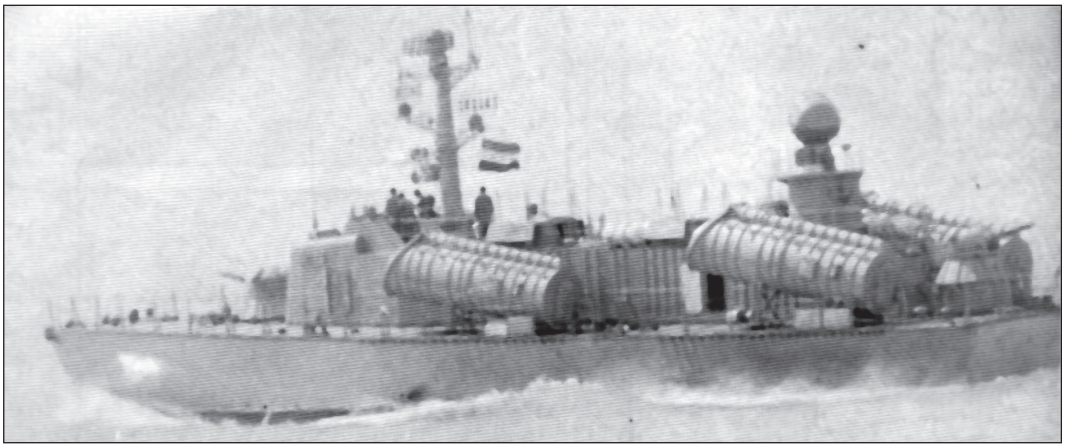
Top view of the operational trajectory and function of the AM.39 Exocet anti-ship missile. Upon release, the missile would cruise to a pre-determined point (1) before activating the ADAC seeker head; the seeker head would make one sweep starting from the left (2); and then adjust the trajectory of the missile to an intercept course (3).
Exocet Attack Profile
Diagram of the operational trajectory of the AM.39 Exocet anti-ship missile

Attack profile and operational trajectory of the Super Frelon-launched AM.39 Exocet missile. (Diagram by Anderson Subtil)



A rare photograph of an Osa II-class missile boat of the Iraqi Navy. Note the four containers for P-15 missiles, two 30mm guns, and the application of the hull number low on the forward hull (obscured by the censor). (Tom Cooper Collection)

became available: however, this is unlikely to happen any time soon. Therefore, presently, only one serious conclusion is to hand: pending the availability of additional documentation, it is highly probably that the Panamanian bulk carrier *Louise I* was the first ever victim of an Iraqi-deployed AM.39 Exocet anti-ship missile.

Moreover – and regardless if this was really the case, or if an Iraqi-launched Exocet damaged *Iran Vahdat* on 13 July 1981, *Iran Ehsan* on 24 September 1981, or *Al Tajdar* on 19 October 1981 – the conclusion is that the Iraqis were the first to use this weapons system in combat, and between 12 and 9 months before the widely published 'first' by the Argentine naval aviation during the Falklands War in May 1982.

The Loss of *Milanian*

Despite the Iraqi inactivity, on 4 July 1981, the IRIN suffered a painful loss. Following the Order Lak Lak (related to the defence of Khark Island from surface attack), the patrol corvette Islamic Republic of Iran Navy Ship (IRIS) *Milanian* (hull number 83; ex-F 27, ex-PF-105) set off from Khark Island at 12.15hrs local time. Almost exactly four hours later, as the ship was underway near the Doroud offshore platform, its crew reported distress and requested help from the headquarters of the 2nd Naval District in Bushehr. Shortly after, the headquarters of TF.421 reported the nature of the incident to the HQ IRIN as follows:

> At 16.18hrs, corvette *Milanian* requested help through sending a tug boat because of collision with an underwater rock. A tugboat was immediately dispatched from the naval base on Khark. A representative of TF.421 was deployed by a helicopter to investigate the matter and determine the extend of the damage. He reported that the tugboat was present, damage control personnel were in the process of pumping the water out of the engine room, and that additional reports are to follow.[6]

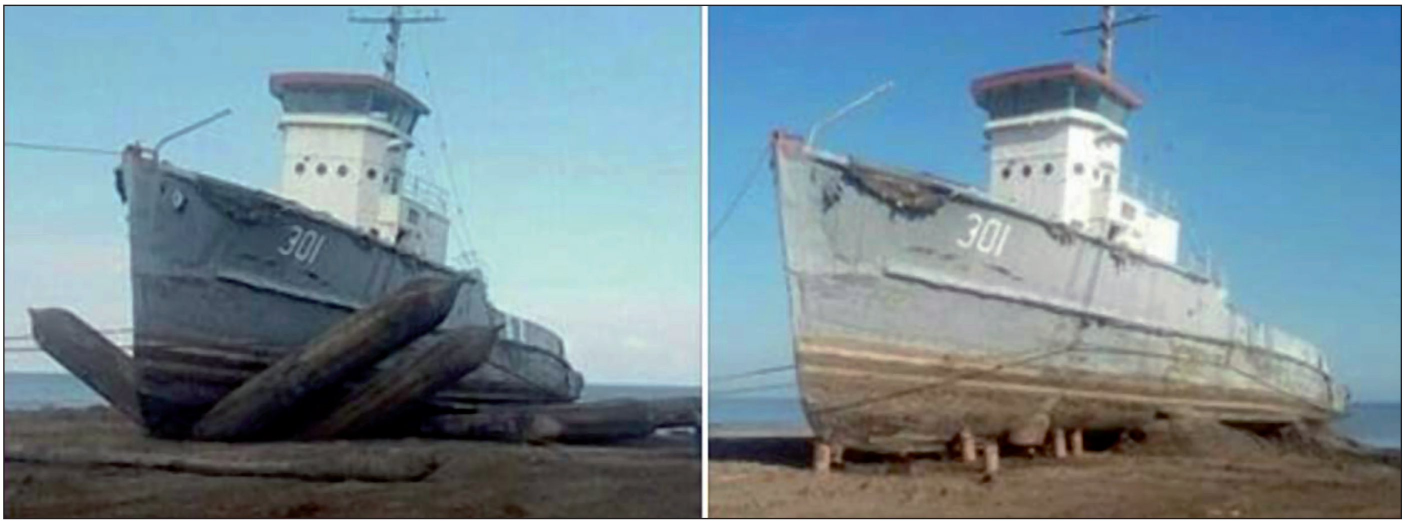
At 17.55, the HQ of TF.421 filed another report:

> Regarding the accident of the corvette *Milanian*, TF.421 has ordered the deployment of one of the fleet tugboats from the 8th Naval District, in order to prevent any kind of misuse of the ship for possible attacks on the Khark Island. Furthermore, in accordance with Directive Shahab, a replacement corvette was ordered to take over the place of *Milanian* and resume patrol activity around Khark.[7]

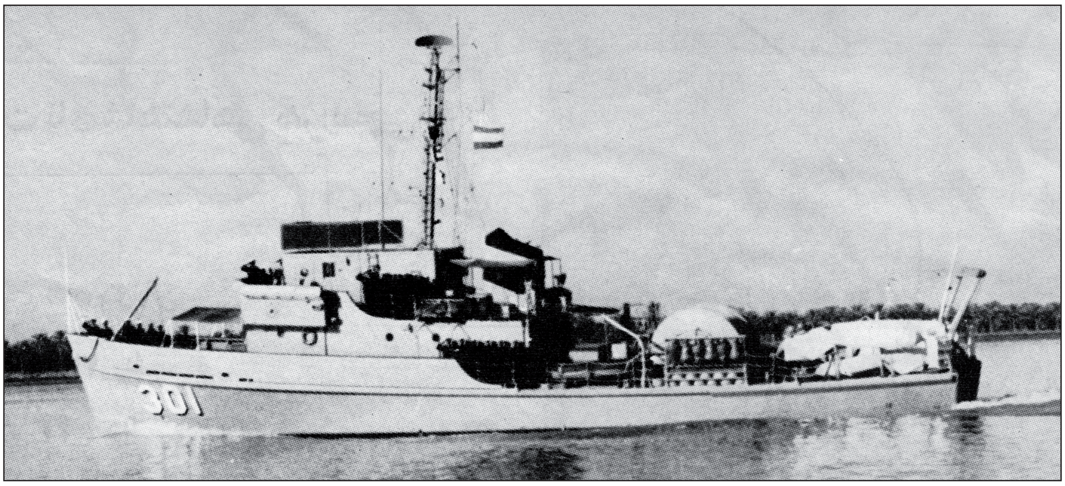
Finally, at 21.20hrs, TF.421 reported the following:

> The latest status of *Milanian*:
> 1) The crew is safe and has been transferred to the base [Bushehr]. Corvette *Milanian* has been towed to Berth No. 6 of the T-Jetty and is moored there. Technical personnel of the ship are busy pumping out water.
> 2) The ship commander is personally present and controls the salvage operation.
> 3) A team of divers has been sent to the site to help.[8]

Milanian, seen during builder's trials, on 6 December 1968. The ship retained its principal weapons configuration – including two 76mm guns and a twin Bofors 40mm cannon – and also added a ZU-23 twin 23mm anti-aircraft gun on the fantail instead of rails for depth charges until its demise in July 1981. (Levington Shipbuilding Co.)



IRIS *Harishi* (hull number 301) seen in derelict condition in the 1990s. The ship was decommissioned in 1988. The fact she was still intact as of that year excludes the possibility of this vessel being destroyed by any kind of Iraqi action in 1981 or after. (Sirous Ebrahimi Collection)



MSC 268-class minesweeper IRIS *Harishi*, seen before the war with Iraq. (IRIN)

In turn, the divers in question reported the following to the HQ of 2nd Naval Region:

> A crack of 9 metres and 25 centimetres in length, and 30 centimetres in width was found alongside the lower left side of the hull, 45 metres and 50 centimetres from the bow, about one metre below the water line. The ruder was found in the middle position.[9]

In other words: the situation was reported as under control. What happened next is unclear: what is certain is only that the ship was stripped of all weapons, ammunition, and all valuable equipment, and then its stern sank, leaving only the bow out of the water. An attempt to refloat the corvette, undertaken on 14 or 17 July, remained unsuccessful.[10]

Around the same time, Baghdad reported an attack and sinking of *Milanian's* sister-ship IRIS *Kahnamuie* (hull number 84, ex-F 27, ex-PF-106), and went on to claim the destruction of two coastal minesweepers of the MSC 268-class, *Simorgh* and *Harishi*, through 1981. As it turned out, *Kahnamuie* never came under attack in that month and *Harishi* survived the war intact and was decommissioned in 1988. Only the final fate of IRIS *Simorgh* is still unclear.

New Tools of Trade[11]

For better understanding of what happened next in regards of the Iranian convoy operations, and the Iraqi attacks on these and against the Iranian oil-exporting industry, it is necessary to take a step back and look at a much wider picture. In addition to new intelligence-gathering capabilities, Super Frelon helicopters and their Exocets, throughout 1981 Iraq obtained several other major weapons systems. The first of these was the service entry of Mirage F.1EQ interceptors. The first Mirages reached Iraq in April of that year, but it took the French deploying a team of advisors to help work up the first unit operating them: No. 79 Squadron, IrAF, based at the newly-constructed Saddam AB, near Tikrit. Meanwhile, the Iraqis received their first intelligence about the Iranians planning several offensives along the southern sectors of the frontline. Correspondingly, as SAVAMA was soon to find out, on 15 September 1981, the GHQ in Baghdad ordered the army, air force and navy to target the port of Bandar-e Imam Khomeini with all means available. This was confirmed by an Iraqi army officer captured and then interrogated a few days later. He also added that all the attempts by the IrAF to bomb BIK had been unsuccessful, and that the navy gave up hope of successfully infiltrating or attacking the port, too.[12]

To enable such operations, the GHQ in Baghdad also ordered a significant reinforcement of IrAF assets in the south of the country, which was the zone of responsibility of the newly-established 3rd Air Defence Division. For example, detachments of MiG-21s from Nos. 9 and 11 Squadrons, and a detachment of MiG-23MS from No. 39 Squadron – followed by MiG-23MFs from the newly-established No. 67 Squadron – were sent to Wahda; while a detachment of MiG-21s from No. 14 Squadron was forward deployed at the newly-constructed Ali Ibn Abu Talib AB outside Nasiriyah. The purpose of concentrating as many interceptors was to counter the Iranian F-14s over western Khuzestan and the northern Persian Gulf. However, by that point in time, all the Iraqi efforts to combat Tomcats had proved fruitless: the pilots of the IrAF did not lack courage, and several of them had claimed aerial victories against Iranian F-14s. However, their primary problem was that the available MiG-21s and

A pre-war photograph of IRIS *Gardouneh*, one of two Kaman-class missile boats escorting the caravan of 10 September 1981. In addition to the OTO-Melara 76mm gun installed in a turret in front of the bridge, four canisters for RGM-84A Harpoon anti-ship missiles can be seen midship, and a Bofors 40mm gun in its mount aft. (CMN)

The launch of a P-15 Termit missile (ASCC/NATO reporting name 'SS-N-2 Styx') from an Osa I-class missile boat of the Soviet Navy. Note the highly visible flame caused by the booster used during launch. (Tom Cooper Collection)

MiG-23s were both much too short-ranged, and too poorly equipped and armed. Therefore, the commander of the 3rd Air Defence Division, Brigadier General Nagdat an-Naqeeb (a former Hawker Hunter pilot) requested a redeployment of Mirage F.1EQs from Saddam AB to the newly-constructed Ali Ibn Abu Talib- and Wahda air bases. Once the GHQ not only granted permission, but also ordered a company from Unit 128 to Wahda, with the specific task of tracking and reporting all activities of the Iranian F-14s, Naqeeb, together with two French advisors, began developing tactics to counter the F-14s. Surprisingly enough, both SAVAMA and FASHA missed this decision entirely. Indeed, they even failed to detect the first operational sortie of the Iraqi Mirages flown on 1 September 1981. Over the following four weeks, the Iraqi Mirage pilots flew ever more often, began intercepting Iranian fighter-bombers and claiming one victory against them after another. Not overly concerned with precise cross-examination of the resulting claims, both the IrAF and the GHQ in Baghdad expressed their satisfaction, and felt emboldened enough to rush their next new tool into action.[13]

Appearance and Reality: 10 September 1981

Emboldened by the availability of new assets, the commander of the Iraqi Navy, Lieutenant General Aladdin Hammad al-Janabi then ordered renewed attacks by Osa missile boats on the Iranian convoy operations. To his aid came Moscow's decision to resume arms deliveries to Iraq, taken in May 1981 (apparently in reaction to the French decision to resume arms deliveries). Amongst others, the Soviets thus returned to the task of working up the first Iraqi unit equipped with Mach 2.8-capable MiG-25 aircraft. Iraq had placed an order including 18 MiG-25R reconnaissance fighters, 18 MiG-25PDS interceptors, and eight MiG-25PU two-seat conversion trainers in 1979. On arrival of the first dozen examples in Iraq (by ship to Basra, in summer 1980), the Iraqis concluded that the aircraft were equipped to a much lower standard than stipulated in the contract: correspondingly, Baghdad refused to accept even one MiG-25 and all were stored – still in disassembled condition – inside a hangar at Wahda AB (formerly Royal Air Force Shaiba, 45km south-west of Basra), pending further negotiations. Once relations between Baghdad and Moscow were normalised, the Soviets also sent a team of technicians together with equipment necessary to bring the aircraft to the originally agreed standard. As a result, in summer 1981, the IrAF began working up its first MiG-25-equipped unit: No. 87 Squadron. Initially, this served as an operational conversion unit and operated all three variants, but for operational purposes primarily flew MiG-25Rs. Rather unsurprisingly, in late September 1981, the Iranians reported the first overflight of Khark Island by one of the 'brand new' Iraqi reconnaissance fighters.[14]

Thanks to the intelligence gathered by Units 114 and 128, and MiG-25Rs, the Iraqi Navy learned a host of new details about Iranian dispositions in the Khark-Bushehr area. It found out that not only the IRIAF-operated MIM-23B I-HAWK SAM site at Kharko – protecting Khark Island, as well as the northern approaches to Bushehr – was fully operational again, but that the Iranians had deployed another such site to protect BIK. With this hindering further IrAF reconnaissance operations over the northern Persian Gulf (except by MiG-25Rs), in September 1981, Janabi began deploying his Osas on reconnaissance operations as far south as Khark Island. Moreover, when on 7 September 1981, Radio Tehran announced that Iran was using BIK to its 'full capacity,' he ordered an attack on the next Iranian caravan – though this time in the form of a coordinated operation by his surface vessels and helicopters.[15]

The convoy in question was conducted as part of Operation Crocodile, which meant that it started at night. The northbound caravan moved out of the Bushehr anchorage at 00.30hrs on the morning of 10 September 1981 and consisted of six ships: *Ithaki Sailor*, *Odesses*, *Eastern Sea*, *Iran Borhan*, *Iran Meelad* and *Iran Ehsan*. The southbound convoy included just five merchants: *Mao Line*, *Xuchang*, *May Sun*, *Arun Kamal* and *Iran Meezan*.[16]

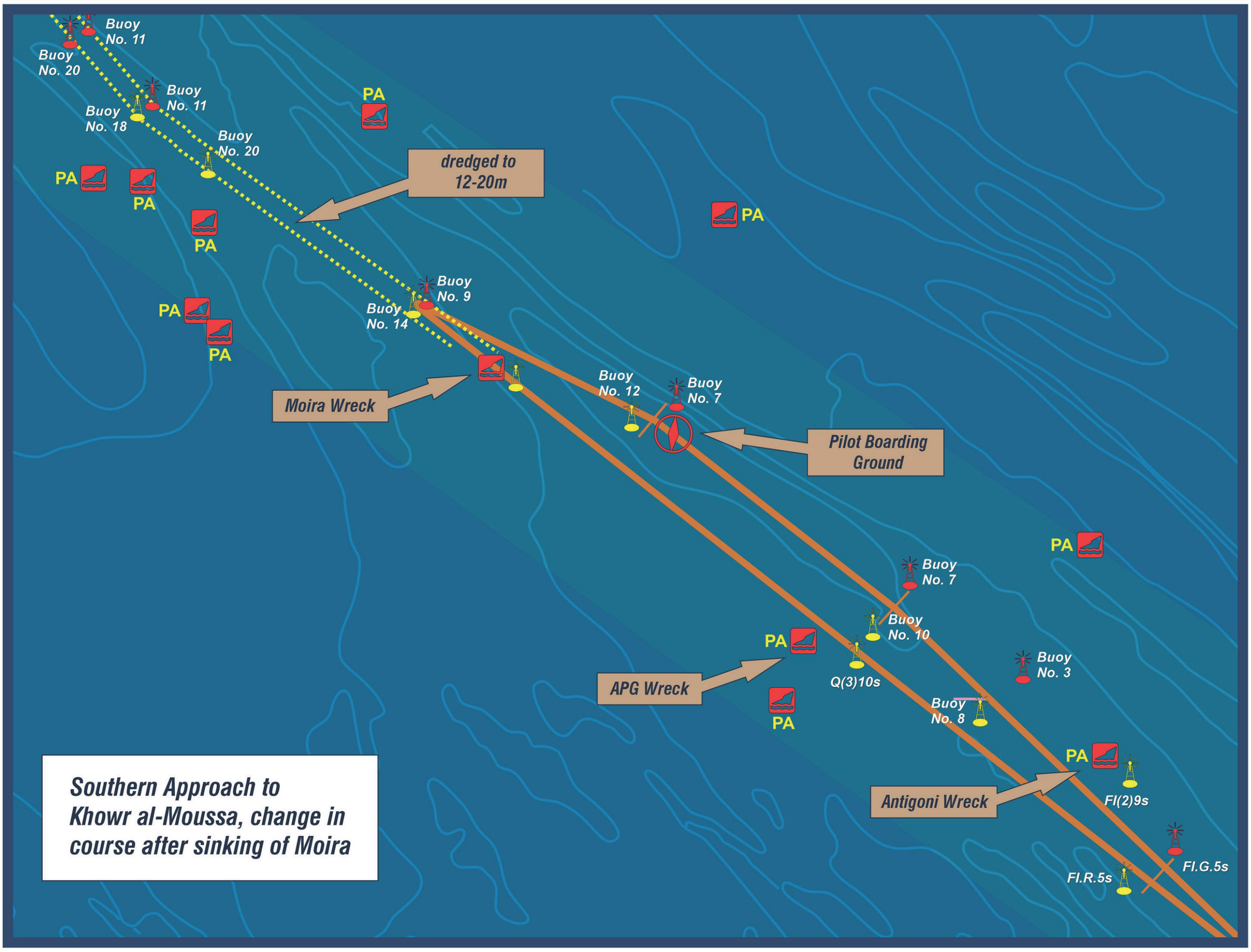
Two Osas sortied from Khowr Abdallah in an eastern direction, trailing the coast before – at around 02.10hrs in the morning – firing seven out of eight P-15 Termite missiles they had on board. Not one scored a hit, but the merchant *Iran Ehsan* ran aground, and tugboats were sent to refloat it. The vessel was safely brought to BIK at 11.00hrs of the same day.[17]

According to Iraqi sources, the two Osas were trailed by a low-flying Super Frelon helicopter, which launched a single AM.39 Exocet anti-ship missile: the weapon then either hit and sank the corvette IRIS *Milanian*, or narrowly missed the Iranian corvette IRIS *Kahnamuie*. However, according to IRIN documentation (and as described above), *Milanian* was already out of service, while *Kahnamuie* was about to enter dry dock in Bandar-e Abbas for a refit. Actually, this caravan was escorted by the Kaman-class missile boats *Khadang* (P223) and *Gardouneh* (P229). Both were informed by the HQ of TF.421 that the Iraqi missile boats were at sea, and were ordered to find and destroy them: however, they failed to do so before the Iraqis fired their missiles and then quickly withdrew.

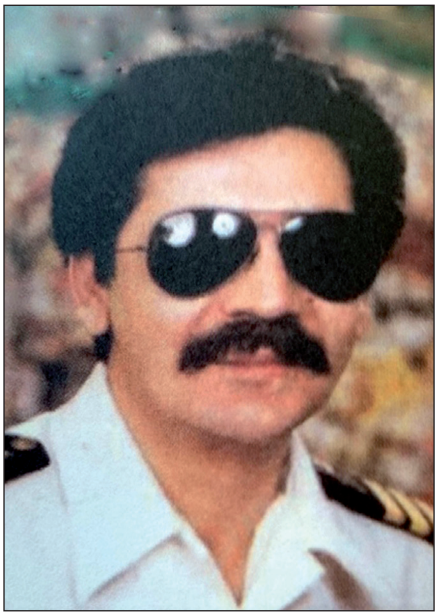
First big Air Strike on BIK

The successful deployment of Exocets on 10 September, and the intelligence gathered by Unit 114 about preparations for the next Iranian convoy emboldened Janabi into coordinating his next move with Basu at Wahda AB. Correspondingly, when two Super Frelons sortied out of Umm Qasr, around 23.00hrs on 1 October 1981, they were protected by a pair of MiG-23MF interceptors.

Travelling at a speed of around 120km/h, the helicopters reached the southern tip of the Faw Peninsula about 15 minutes later, before climbing to an altitude of about 200 metres, powering-up their radars and detecting the last ship of the Iranian caravan. The Iraqis launched two Exocets within 30 seconds of each other – and both found their mark: around 23.30hrs, they slammed into the forward section of the hull and the bow of the Panamanian bulk carrier *Moira*. Officially, the latter was underway with a cargo of polyvinyl chloride (PVC) – plastic material used for many different purposes. However, gauging by IRIN reaction it is near-certain that *Moira* actually transported something else: most likely weapons and spare parts clandestinely acquired abroad. As the vessel caught fire, TF.421 rushed to evacuate the crew of 20 Pakistanis and one Iranian (three of whom were wounded, including the PMO pilot Captain Siyamak Erfani Ezzati). They were evacuated by an ASH-3D Sea King helicopter (serial number 8-2315) and tugboats. The ship was then taken under tow towards the port of Imam Hassan, north of Genaveh, when it sank at the entrance to Khowr al-Moussa, near



A map showing the place where *Moira* was sunk, almost directly at the southern entrance to the dredged section of Khowr al-Moussa, and the resulting changes in the course of all the subsequent caravans. (Sirous Ebrahimi Collection)



PMO pilot, Captain Siyamak Erfani Ezzati, who lost both eyes when *Moira* was hit by an Exocet on 1 October 1981, and eventually died of his wounds on 31 October 2007. (PMO)

Buoy No. 12. *Moira* thus became the first ship in this war actually destroyed by Exocets.[18]

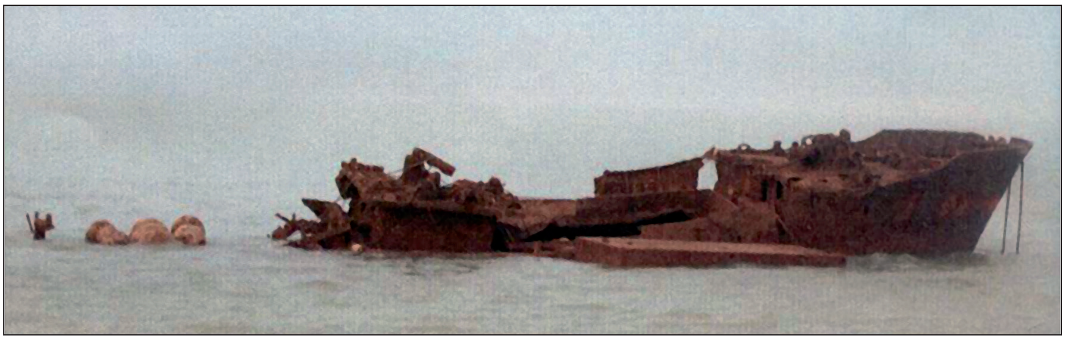
The next caravan was also conducted as part of Operation Crocodile. It included only four empty merchants, which were escorted from BIK to Bushehr early on 19 October 1981: *Marazol*, *Easren Sea*, *Iran Meelad* and *Damodar Tasarka*. As the southbound convoy exited Khowr al-Moussa, two Super Frelons flew from Umm Qasr to al-Faw to launch one Exocet each. Neither missile was ever detected by the Iranians: indeed, the convoy reached the Bushehr anchorage without any incidents. Meanwhile, at 06.35hrs, five Su-22s from No. 109 Squadron appeared at a very low altitude to bomb the port of Bandar-e Khomeini with Soviet-made 500kg FAB-500M-62 bombs. Several docks and administration offices were damaged, killing seven and wounding 22 personnel and workers of the PMO. One bomb hit the starboard side of the bow of the Liberian bulk carrier *Al Tajdar* as it was unloading wheat: the weapon slammed through the hull and went out to the other side – without exploding. The Iraqis later claimed to have hit and sunk *Al Tajdar* with two Exocets, which is why 19 October 1981 is usually considered to be the first combat deployment of this weapon.[19]

Scuds Versus Khark

With Unit 114 detecting preparations for the passage of the next convoy, the Iraqis kept the defences of BIK under pressure. This is clear, for example, from reports from the corvette IRIS *Naghdi*, about events that happened on 21 and 22 October 1981. Around 18.35hrs on 21 October, an Iraqi MiG-25R overflew BIK, Khark and Bushehr at a very high altitude, probably running pre-strike reconnaissance. Slightly over 20 minutes later, a Mirage F.1EQ equipped with a COR reconnaissance pod, and escorted by two other Mirages was detected while approaching Khark. This time, the Iraqi jets passed closely enough for IRIS *Naghdi* (hull number 82; ex-F-26) to engage them with its 76mm guns. The same scene repeated itself around 19.32hrs, when a trio of Mirages passed north of Khark before – underway at an altitude of 5,000ft – turning around and disappearing in the direction of BIK. Assuming the latter group included a jet equipped with a COR-2 reconnaissance pod, the Iranians concluded that the enemy was preparing an attack.[20]

However, whatever the Iraqis planned to do, next to nothing happened when, on

The Panamanian bulk carrier *Moira*, seen before the war. (PMO)



Moira's wreckage sitting in shallow water a few years after the war. (Sirous Ebrahimi Collection)

The Liberian bulk carrier *Al Tajdar*, the much exaggerated 'first victim' of the Exocets. Actually, on 19 October 1981, the ship was lightly damaged by an Iraqi bomb while tied to a pier at BIK. Rather than *Al Tajdar*, it was the Panamanian bulk carrier *Louise I* that was the first ship destroyed by Exocets on 20 May 1981. (Sirous Ebrahimi Collection)

23 October 1981, the IRIN escorted yet another – even if smaller – caravan to BIK. Hampered by bad weather, No. 101 Squadron of the Iraqi Navy made only a lukewarm attempt which culminated with the launch of a single, yet poorly-aimed AM.39. Subsequently, the headquarters of TF.421 filed a report containing a number of highly-interesting observations and lessons:

> …Regarding the conditions and status of the escort operations, please inform the command about the following. In the last 1.5 months, TF.421 escorted eight convoys to BIK. Only one without incident:
>
> 1) While escorting two commercial ships from Bushehr to BIK at 03.05hrs on 23 October 1981, a missile was launched towards, which did not hit any of the ships, because all vessels took necessary countermeasures and manoeuvred to evade. According to the personnel involved, the missile fell into the sea about five miles from the second ship.
> 2) The escorted ships were selected from the fastest ships and passed the danger zone within the shortest period of time possible.
> 3) The Crocodile check-list was thoroughly followed and one of our frigates was deployed near the Nowruz platform with the task to monitor and report firings of enemy missiles. Its crew could clearly see the light of missiles from the Ras al-Bisheh area to the Khowr al-Moussa. The 77th Division of the army attempted to react with artillery fire. The entire action was confirmed by intercepted radio messages.
> 4) At 03:00hrs on 23 October 1981, the presence of an enemy missile boat was recorded under the construction of the Mina al-Bakr. The crew of our frigate then observed the light as this boat fired a missile that fell about five miles short of the way into Khowr al-Moussa.
> 5) Our missile boat *Khadang* was sent to try to engage and destroy the enemy missile boat as soon as it left shelter, but no such opportunity occurred. Indeed, the enemy missile boat did not move the entire following day.
> 6) During this and other recent attacks the position of merchants that were fired upon at the time missiles were launched was just a mile from the entrance to Khowr al-Moussa. If the enemy succeeds in sinking one of the ships there, there is a high possibility that the canal will be blocked.
> 7) Over the last 1.5 months, seven caravan operations have been carried out from Bushehr to BIK: one without any incidents but six others were attacked. In turn, eight caravan operations were carried out from BIK to Bushehr, all without any incidents. Therefore, it is obvious that the enemy is seeking to hit the ships carrying goods, also in attempt to sink one and block the Khowr al-Moussa. Should the enemy manage this the waterway will be blocked.
> 8) We recommend that considering all the experience gained, all of the existing planning is reviewed and analysed in detail, and completely revised.[21]

Notably, by night and in good weather, the crews of Iranian vessels could see the flash caused by the boosters of Iraqi anti-ship missiles from more than 70km away. Moreover, as of this time, the IRIN had begun training the crews of its warships and the PMO pilots guiding foreign merchants to execute anti-missile manoeuvres when advised about the approach of enemy weapons.

However, long before TF.421 was able to review any of its plans for operations Crocodile and Torpedo-2, TF.421 was already in the process of preparing the next caravan. At least according to Iraqi and Western reports, it was precisely at that point in time – on 25 October 1981 – that the IrAF flew its biggest air strike on Khark Island up to that date. Indeed, the attack in question was claimed to have been so successful that it cut Iranian crude oil exports by 40 percent. However, a cross-examination of available Iranian documentation reveals no trace of any kind of an Iraqi air strike at all, and even less so such a dramatic decrease in Iranian oil exports. On the contrary: the weather was bad and thus hampered flight operations by both sides. At most, 25 October 1981 might have seen a culmination of an Iraqi campaign to strike Khark with the use of Soviet-made R-17E (ASCC/NATO reporting name 'SS-1c Scud-B') ballistic missiles. This was initiated on orders from Saddam Hussein on 18–22 August of the same year, when the Iraqi 224th Missile Brigade fired 24 missiles. The campaign was, sporadically, continued through September, and then into October: at least three Scuds were fired at Khark on the 25th of that month. Even then, all the R-17Es missed their target by kilometres: indeed, all the Iranians registered were detonations at the sea around the island. Therefore,

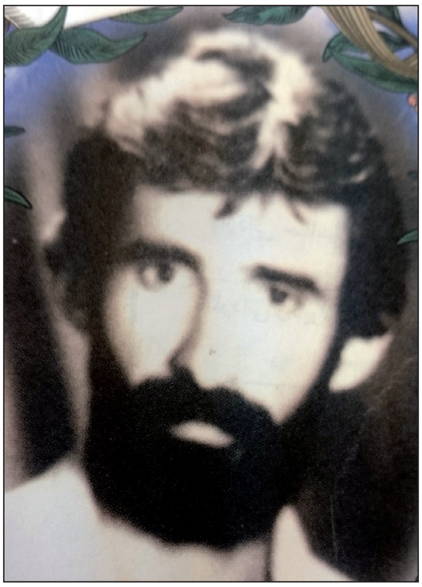
A Mirage F.1EQ-2 with a COR-2 reconnaissance pod under the centreline. (Dassault) the traffic of very large crude carriers (VLCCs) and ultra large crude carriers (ULCCs) was never interrupted at all: indeed, amongst such super tankers loading crude at Khark as of late October and early November were ships named *Sea Song*, *World Victoria*, *King Agamemnon*, *Lakoniyan*, *Golar Kanto*, *Montana*, *Polaris* and about a dozen others.[22]

The Game of Cat-and-Mouse

Unsurprisingly, the IRIN thus continued with 'business as usual,' and at 01.15hrs on the morning of 26 October it launched the next northbound convoy from the Bushehr anchorage (the southbound convoy began moving around 04.00hrs). Logically, the navy requested that TFB.6 strike the TRS.3004 Sea Tiger radar now installed on the Mina Khowr al-Amiyah platform precisely at the time the caravan from BIK was about to start moving. The mission was flown by a single F-4E crewed by Captain Circus Baheri, with 1st Lieutenant Nasraleh Khazai in the rear cockpit, but resulted in no success. Arguably, the Phantom crew detected an Iraqi helicopter parked at the platform and claimed it as destroyed using a single AGM-65A Maverick. However, either he was poorly briefed, or Baheri had missed the actual purpose of his mission: knocking out a radar the Iraqis had recently installed there. Therefore, the TRS.3004 remained operational.

What happened next appears to have surprised both sides. Baheri was still in the process of returning from his mission when a single Tupolev Tu-22 bomber of the IrAF escorted by a pair of Su-22 fighter-bombers appeared over the Darkhoveyn area, north of Khorramshahr. Before turning in the southern direction, the bomber and two escorting fighter-bombers began deploying strong electronic countermeasures, completely blinding the IRIAF radar station at Sar Bandar – before proceeding to bomb Abadan. Two hours later, another Tu-22 escorted by two Su-22s repeated the exercise. Whatever the purpose of this activity, eventually it had the effect of drawing the attention of the IRIAF ever further away from the situation between BIK and Bushehr – and while the TRS.3004 radar at Mina Khowr al-Amiyah remained operational. Unsurprisingly, the radar detected the convoy moving out of BIK and, around 04.00hrs in the morning, a single Osa missile boat moved out of Khowr Abdallah at high speed. As usual, the Iranian caravan was escorted by at least one Kaman-class missile boat, and this fired a single RGM-84A Harpoon missile, claiming the destruction of the Iraqi vessel. However, while the Iranians were busy fighting the lonesome Osa, two Super Frelons from No. 101 Squadron were scrambled from their base in Umm Qasr. Upon reaching the southern tip of the Faw Peninsula, they climbed to an altitude of 200 metres, and powered up their radars. After detecting a column of vessels passing through Khowr al-Moussa in a southern direction, each Super Frelon launched one Exocet. At around 04.10hrs, both missiles homed in on the Indian bulk carrier *Rishi Vishwamitra*: the first slammed through the hull, passing through the cargo hold before exiting to the other side without detonation. However, the second detonated inside the engine room, killing two of the crew and PMO pilot Shir Ali, and causing a fire in one of the fuel tanks. The Iranians were only able to evacuate surviving crewmembers and then tow the burning hulk back to BIK, where it was written off.

The action was continued at dawn, when the IRINA launched an AB.212ASW helicopter to search for the crew of the Iraqi Osa boat claimed as destroyed at the mouth of the Shatt al-Arab. As this was going on, around 06.50hrs, the third trio of Iraqi Tu-22s and Su-22s appeared over the Darkhoveyn area and – once again – deployed electronic countermeasures that blinded the Sar Bandar radar. This time, the IRIAF reacted by vectoring one of its F-14As to intercept. The approach of the lonesome Tomcat was detected by Iraqi radars and the IrAF ground control promptly ordered the bomber and its two escorts to turn west. Having approached to less than 20 nautical miles (37km) from its target, the F-14 crew persisted to complete the intercept and decided to pursue the bomber although it had meanwhile escaped over the area west of the Karoun River, heavily protected by multiple Iraqi SAM systems. Around 06.55hrs, the Tomcat fired a single AIM-54A Phoenix missile and its crew claimed to have shot down one of the escorting Sukhois. Immediately after,



PMO pilot Captain Baron Shir Ali, killed while piloting *Rishi Vishwamitra* on approach to Khowr al-Moussa on 26 October 1981. (PMO)

The Indian bulk carrier *Rishi Vishwamitra*: the first ship *destroyed* by an Exocet during the Iran-Iraq War. Although it did not sink, it was declared CTL (constructive total loss) as a result of a fire caused by a hit into the machinery spaces. (Sirous Ebrahimi Collection)

A post-war photograph of an F-4E armed with AIM-9J Sidewinders (visible on underwing stations) and AIM-7 Sparrows (barely visible under the rear fuselage), rolling out of a hardened aircraft shelter for take-off from TFB.6. (MEHR)

the lonesome Iranian interceptor came under attack from several SAMs and was forced to break and return back to the east. Flying fast and low, the jet managed to evade the Iraqi fire.

However, when the F-14 went after the Tupolev bomber, the Iraqis felt free to send their Super Frelons in to make another attack. This time, two Exocets hit the Iranian bulk carrier *Iran Rezvan*, causing so much damage that the ship sank near the southern entrance to the Khowr al-Moussa. Alerted by the fact that the Iraqis were aware of its caravans, TF.421 then requested another air strike on the TRS.3004 radar at the Mina Khowr al-Amiyah platform. However, failing to understand the situation, the command of TFB.6 did not comply. Instead, at 11.55hrs a single F-4E – callsign 'Dragon-E', crewed by Captain Ismail Asgari Garvand, and 1st Lieutenant Hossein Delhamed – was launched from Bushehr, armed with AIM-7E2 Sparrow and AIM-9J Sidewinder air-to-air missiles. Tasked with providing top cover for the caravans below, Asgari Garvand climbed to an altitude of 20,000ft (6,096m). With use of his APQ-120 radar and APX-80 Combat Tree enemy identification friend or foe (IFF) interrogator, he and Delhamed detected two Iraqi fighters in front of them: one about 8nm (14km), and the other some 30nm (51km) away. With no F-14s on hand to help, Asgari Garvand engaged the nearest opponent but ended up being sandwiched between two Iraqi interceptors. The Phantom was hit by an Iraqi missile from behind and shot down. The crew ejected over the swamps south-west of BIK: Asgari Garvand succumbed to injuries sustained when the enemy missile hit his jet before he could be found by IRINA helicopters. His weapons system officer was recovered only 72 hours later.

Overall, on 26 October 1981, the IRIN claimed one Osa as sunk, but lost two empty merchants from the southbound caravan for Bushehr, even though managing to bring a large convoy of fully-loaded ships to BIK. The IRIAF fared much poorer: while one of its F-14As claimed a Su-22 as shot down by an AIM-54, it lost another precious F-4E from TFB.6 to Iraqi interceptors.

The Issue of Air Superiority

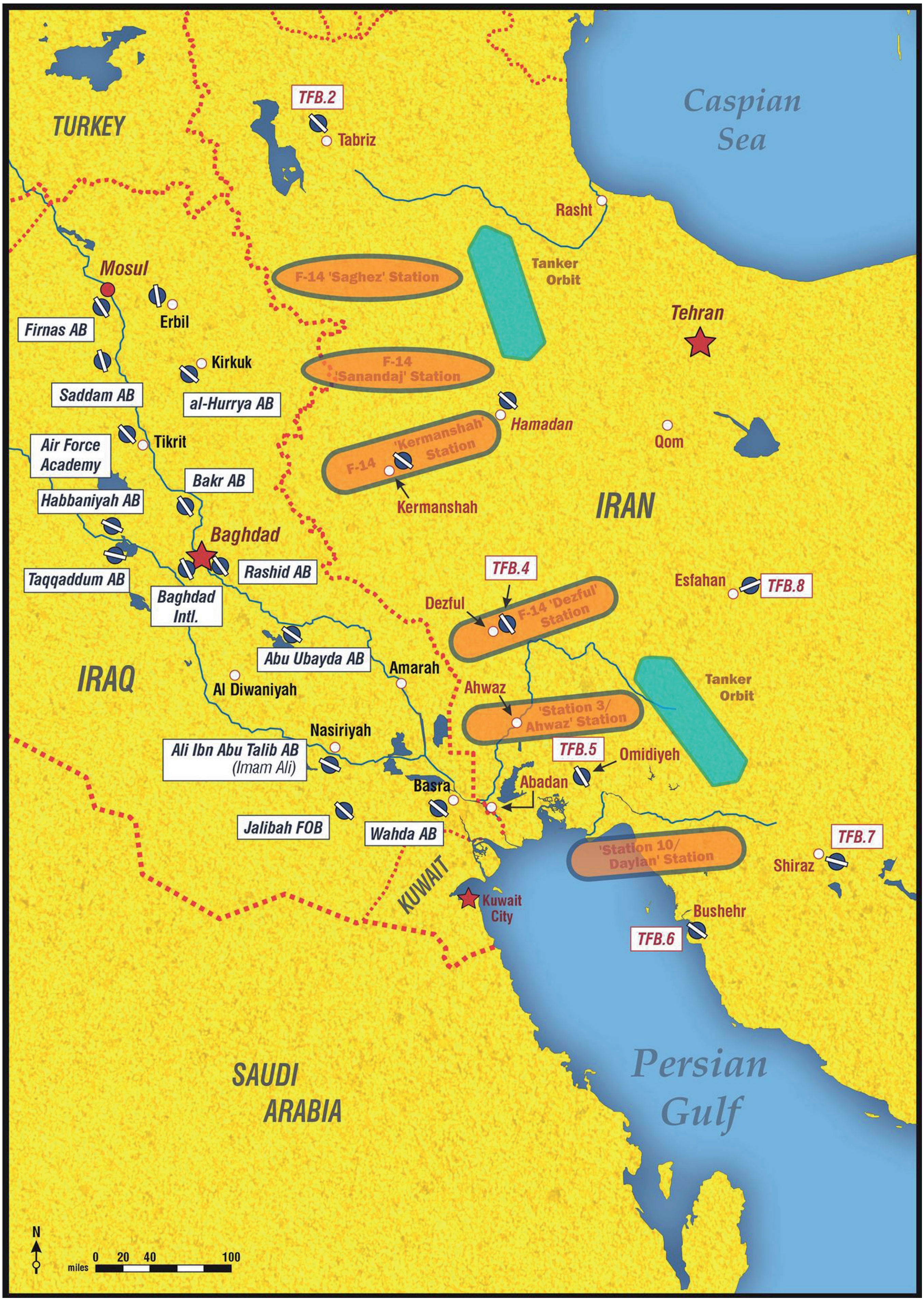
Meanwhile, the Iraqis also received their first batch of Soviet-made Kh-28C and Kh-28E anti-radiation missiles (ASCC/NATO reporting name 'AS-9 Kyle') from the USSR. Together with accompanying Myetel targeting pods, these arrived accompanied by a team of technicians that modified six Su-22Ms from the Firnas-based No. 5 Squadron to the standard locally known as 'Su-22M-2K'. Following hurried preparations, Su-22M-2Ks and Kh-28s were deployed in combat for the first time during the late afternoon of 27 October 1981, when the Iraqis managed to destroy or damage six HPIR fire-control radars of various Iranian MIM-23B I-HAWK SAM sites.[23]

The result was a paradoxical situation: the Iraqis not only felt emboldened thanks to the French and Soviets conducting a race for who was going to deliver more of their advanced weaponry and ammunition to Baghdad; by the claimed success of their Mirage pilots; and by their new anti-radiation missiles; although continuously suffering losses to Iranian Tomcats. Indeed, even during its first anti-radiation strike on 27 October 1981, the IrAF lost one of the Su-22M-2Ks involved to the IRIAF's F-14s. However, with nobody in Baghdad concerning themselves with cross-examining claims by No. 79 Squadron's pilots, the IrAF convinced not only itself, but even the GHQ that it was clearly superior to everything flown by the Iranians. Therefore, Brigadier General Naqeeb ordered No. 79 Squadron into action against Iranian F-14s.

Meanwhile, SAVAMA and FASHA conducted a constant analysis of the collected intelligence. When they combined the Iraqi decision to attack BIK with all available means with the Iraqi Navy's attack on caravans, and the strong concentration of IrAF interceptors at bases around Basrah with IrAF attacks on IRIAF MIM-23 sites with use of Soviet-made anti-radiation missiles, and intelligence reports about the Kuwaiti armed forces cancelling all their leave, the conclusion was clear: fearing a renewed, large Iraqi offensive in Khuzestan, the Joint Chiefs of Staff (JCS) in Tehran put all units of the army, air force, and navy (including TF.421 of the IRIN, as well as TFB.7 and TFB.8 of the IRIAF), on alert.[24]

Under such circumstances, and from the Iranian point of view, the crucial issue was that of air superiority: as long as the F-14As maintained their dominance over the entire IrAF, the IRIAF was largely free to bomb the Iraqi ground forces and capable of effectively protecting IRIN convoy operations. *Vice versa*: if the IRIAF lost air superiority it could neither provide effective close air support for the army in western Khuzestan, nor protect avy convoys. The question of air superiority was even more important considering the fact that Tehran was preparing multiple offensives of their own, all of which aimed to throw the Iraqis back to the international border. With this, the outcome was inevitable: in November 1981, the IrAF and IRIAF would clash in a showdown over the issue of air superiority over Khuzestan, and thus the northern Persian Gulf.

The first to move was the IrAF. Around 10.00hrs on the morning of 15 November, two F-14As were on CAP Station 3, over the Mahshahr area. A few minutes later, they had a brief engagement with several Iraqi fighter-bombers that attempted to bomb positions of the 92nd Armoured Division of the Iranian army. The crew including Captain Hassan Ebrahimi and 1st Lieutenant Ansarien claimed one enemy jet as shot down by a single AIM-54A fired from a range of 18nm (33.3km). Once the Iraqis withdrew, the two Tomcats returned to their station, and Ebrahimi/Ansarien withdrew their F-14A for an in-flight refuelling from a Boeing 707-3J9C tanker.


TFB.2
Tabriz
TURKEY
Caspian Sea
Rasht
Mosul
F-14 'Saghez' Station
Tanker Orbit
Tehran
Firnas AB
Erbil
Kirkuk
F-14 'Sanandaj' Station
Saddam AB
al-Hurrya AB
Hamadan
Qom
Air Force Academy
Tikrit
F-14 'Kermanshah' Station
Bakr AB
Habbaniyah AB
Kermanshah
IRAN
Baghdad
TFB.4
Taqqaddum AB
Rashid AB
Esfahan
TFB.8
Baghdad Intl.
Dezful
F-14 'Dezful' Station
Abu Ubayda AB
Amarah
Tanker Orbit
IRAQ
Al Diwaniyah
Ahwaz
'Station 3/ Ahwaz' Station
Nasiriyah
TFB.5
Omidiyeh
Ali Ibn Abu Talib AB (Imam Ali)
Abadan
Basra
Jalibah FOB
Wahda AB
'Station 10/ Daylan' Station
TFB.7
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Bushehr
TFB.6
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miles
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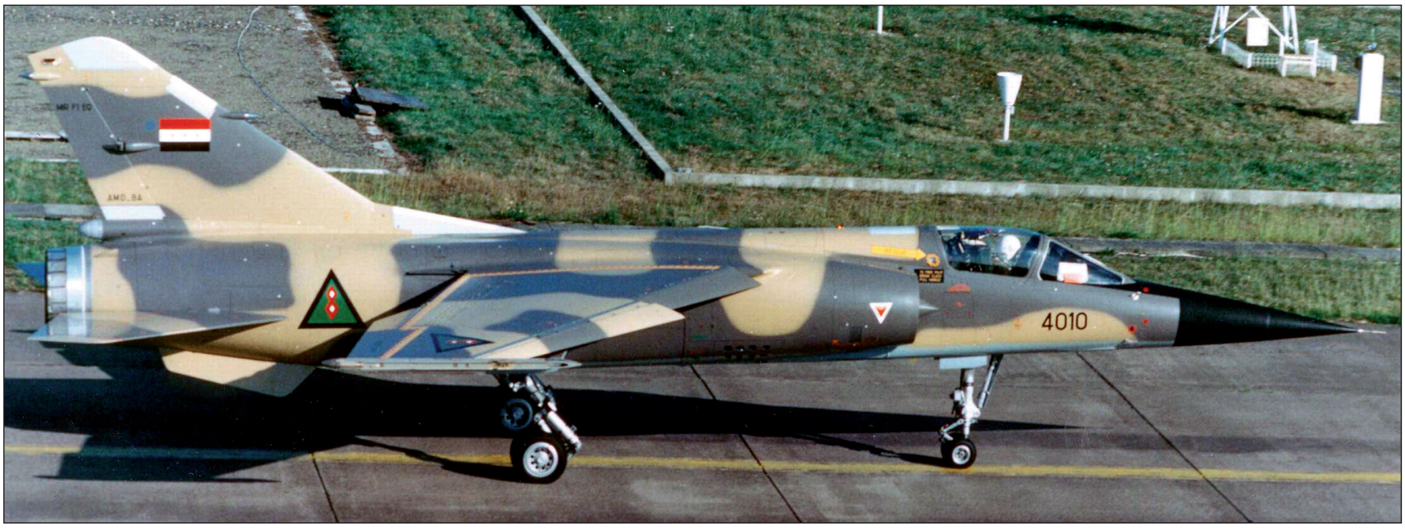
A map of Iran and Iraq, showing the most important air bases of both air forces, and known CAP stations and tanker orbits of the IRIAF in 1981–1983. (Map by Anderson Subtil)

AIM-54A
SERNO

Ground technicians of the IRIAF in the process of loading an AIM-54A Phoenix missile on to the so-called 'pallets' under the fuselage of an F-14A. (Tom Cooper Collection)

At least nominally, the Tomcat was still on station – the aircraft with callsign Ahang-2, piloted by Captain Gholam-Reza Nezam-Abadi, with Lieutenant Fathollah Jalal-Abadi in the rear cockpit – was supported by a single F-4E, but then the Phantom had to withdraw for in-flight refuelling before the other F-14 returned. At that point in time, and acting on advice from Unit 128, a pair of Iraqi MiG-23MS' from No. 39 Squadron was scrambled from Wahda AB. The two jets approached the lonesome Tomcat from the west: when the Tomcat turned to intercept, a pair of Mirage F.1EQs led by Major Abdul Karim Mukhalad – commander of No. 79 Squadron – sneaked up on it from the north. As the two low-flying Iraqi interceptors approached their target the ground control centre at the Wahda AB called them to issue the pre-determined code-word – 'Giraffe' – advising the pilots to enter a steep climb and power-up their radars. Nezam-Abadi and Jalal-Abadi detected the new threat with their AWG-9 radar from a range of 30nm (55.6km) but were uncertain about its identity: they called ground control in Dezful to ask if these could be Northrop F-5E Tiger IIs of the IRIAF. By the time there was an answer it was too late: the Iraqis had established a lock-on on the Tomcat and fired at least two Super 530F medium-range air-to-air missiles from about 17nm (31.5km). At 11.33hrs, at least one of the two Iraqi missiles hit the Tomcat, forcing the crew to eject. Nezam-Abadi and Jalal-Abadi parachuted to safety and were picked up by a team of Iranian gendarmes near the IRIAF radar station outside Ahwaz. For the first time ever, the IrAF had scored a confirmed kill against an F-14A Tomcat.[25]

Emboldened by this success, Brigadier General Naqeeb ordered Basu and Mukhalad to launch a major effort. On 24 November 1981, two Giraffe operations – called this because of their flight profile – were conducted, both in coordination with MiG-23s from Nos. 39 and 67 Squadrons. Once again, the Iraqi interceptors were scrambled on advice from Unit 128 and hit at the time only one Tomcat was on station. Late in the morning, MiGs and Mirages attacked the F-14A crewed by Captain Jafar Bahadoran and 1st Lieutenant Yadollah Hosseini. The MiG-23s were detected while about 36nm (66.7km) west of Ahwaz, at an altitude of 10,500ft. As the high-flying Tomcat initiated an intercept, the Iraqis rapidly withdrew. Bahadoran then turned back east to return to his station. Moments later, he came under attack from two Mirages that approached from the south: Hosseini saw smoke trails approaching from '4 o'clock' (aft right side), prompting his pilot to break hard, but: it was too late. One Super 530F hit the Tomcat, forcing the crew to eject. The IRIAF was still in deep shock over the second Tomcat loss when, around 16.35hrs, the Iraqis shot down the third: the F-14A crewed by Major Abolfazl Hooshyar and 1st Lieutenant Ahmad Roustaei was hit in almost exactly the same fashion, and the crew forced to eject.[26]



A pre-delivery photograph of Mirage F.1EQ-2 serial number 4010. This aircraft was one of those serving with No. 79 Squadron, IrAF, when the unit became involved in fighting for air superiority over western Khuzestan in September–December 1981. (Dassault)

All-e-Agha's Response

Lieutenant Colonel Hashem All-e-Agha, here in front of F-14A serial number 3-6027, seen at TFB.8 (near Esfahan) in around 1983–1984. He was highly respected as the top air warfare tactician of the IRIAF, and therefore sought for by the Iraqis. Much of his combat career during the Iran-Iraq War, and his ultimate fate were both closely tied to the caravan operations. (Babak All-e-Agha Collection)

The downing of three Iranian F-14s on 15 and 24 November was a major blow for the IRIAF – and thus also for the IRIN. While the air force was forced into a grudging realisation that the Iraqis had found a way to counter its Tomcats, the navy had to contemplate possible repercussions for operations Torpedo-2 and Crocodile – even more so because the IRIN knew it had to safeguard the transhipment of huge volumes of ammunition and supplies to BIK and Mahshahr, necessary for the future Iranian offensive. Indeed, even the JCS in Tehran had to consider what this meant for Iran's capability to establish at least aerial dominance over the battlefield at the time it was preparing for operations to liberate Khuzestan. From the Iranian point of view, the situation was even more critical considering that after one year of war, the IRIAF fleet of combat aircraft was already depleted, its pilots and ground crews exhausted, and that they now not only had to intensify their operations again, but also to face multiple new threats.

The task of devising a way to counter the Iraqi Mirages fell on the shoulders of Deputy Operations of TFB.8, Lieutenant Colonel Mohammed Hashem All-e-Agha. He developed a plan based on calculated risk. To solve the problem with coordination and IFF, it included a complete ban on all other aerial activity of Iranian aircraft and helicopters over Khuzestan for several days. While thus exposing the Iranian ground forces to Iraqi air strikes, this enabled Tomcat crews to operate freely. The only other aircraft permitted to fly near their CAP stations were F-5E Tigers from TFB.4, outside Dezful: their task was to patrol possible Iraqi approach routes at low altitudes.

All-e-Agha's plot worked almost flawlessly: when two MiG-23MFs from No. 67 Squadron – acting as decoys to drag Tomcats in front of two Mirage F.1EQs from No. 79 Squadron – attempted to repeat the feat of the previous day, both were claimed as shot down by a single AIM-54. Worse yet, with the MiGs out of the way, and Mirages forced to withdraw after being detected in time by low-flying Tiger IIs, the IRIAF's Tomcats had a field day: by sunset their pilots claimed five additional kills against MiG-23BNs and Su-22s, effectively sweeping the skies free of the IrAF.[27]

On 29 November 1981, the Iranian ground forces were thus free to launch their Operation Tariq al-Qods, with the aim of liberating the town of Bostan, in northern Khuzestan. Moreover, this push caused enough urgency in Baghdad to prompt the GHQ to order Mirage pilots into renewed Giraffe operations. However, with help of timely warnings from *Khoofashs*, the low-flying F-5E BARCAPs spoiled two attempts on 29 November: each time, the Mirages beat a hasty retreat as soon as they detected the Tiger IIs. An attempt including a pair each of Mirage F.1EQ-2s, MiG-23MS' and MiG-23MFs, launched on 30 November, was spoiled in the same fashion, and ended with the IRIAF Tomcats claiming three kills against MiGs and two against Mirages. Similarly, on 2 December 1981, the approaching Iraqis were detected early and this time one of the MiG-23MS' involved was shot down by Captain Assad Adeli, with radar intercept officer Mohammad Massbough, and its pilot captured by the Iranian ground forces. Moreover, the following formation of Su-22s first lost one aircraft due to pilot error, and then had to jettison all of its ordnance and beat a hasty retreat. All the Iraqi Mirage pilots could show in return was an unconfirmed claim by Captain Salah Ismail Nasser for downing two F-4Es.[28]

A day later, on 3 December 1981, All-e-Agha went a step further and set up a trap for the Mirages: instead of deploying a pair of F-14As on their usual CAP station near Ahwaz, he arranged for two F-4Es from TFB.6 to operate there – as usually protected by a low-flying BARCAP (barrier combat air patrol) of F-5Es from TFB.4. In turn, the four Iranian fighter-bombers were shadowed by a pair of F-14As from TFB.8 that orbited at low altitude well to the rear, undetected by the Iraqis. When a pair of Mirages appeared to attempt another Giraffe operation, the F-14As powered up their AWG-9s and fired one AIM-54A each. According to the Iranians, both Mirages were shot down and one of their pilots captured by the troops of the 92nd Armoured Division. The Iraqis confirmed only one loss.[29]

On 4 December 1981, No. 79 Squadron, IrAF, attempted to exact revenge. This time, Major Mukhalad and 1st Lieutenant Haytahm Khatab Omar attacked two F-4Es on a CAP station over Ahwaz, and the leader of the Iraqi pair fired two Super 530s from a range of 18 kilometres. However, the Iranians had enough time to recognise this attack and break hard, causing both missiles to miss. Contrary to the usual practice, Mukhalad then pressed home his attack, cut the range and fired a single R.550: however, the missile detonated behind an F-4E, only causing it to distance while leaving a trail of smoke. Frustrated, Mukhalad and Haytam then disengaged to avoid a pair of counterattacking Tomcats.[30]

Overall, despite the early success of No. 79 Squadron against IRIAF Tomcats, the Iraqis thus proved unable to establish and then maintain themselves in possession of at least aerial dominance. Indeed, one of their intelligence reports filled later the same month concluded that, 'the Persian enemy's combat capability for current and future [operations] should not be underestimated'. As a result, the Iranian Operation Tariq al-Qods ended with the first clear-cut Iraqi defeat in this war, while the IRIN was free to continue escorting convoys to BIK and Mahshahr.[31]

Sudden Calm

Considering such furious aerial and naval activity over southern Iraq, south-western Khuzestan and the northern Persian Gulf through September, October and November 1981, it is highly surprising that next to nothing happened in December of the same year. Indeed, although the JCS in Tehran were preparing another major ground offensive at the time – Operation Moharram, initiated on 10 January 1982 – there were so few important events, that the available IRIN documentation contains only a few intelligence reports about the arrival in Kuwait of two Soviet ships carrying ammunition and military equipment for Iraq, and a joint Kuwaiti-Saudi exercises on Bubiyan Island.[32]

Part of the reason was continuous bad weather, with heavy rains and low temperatures. Another reason was that No. 101 Squadron of the Iraqi Navy had almost exhausted its original stock of 60 AM.39 Exocets, and Baghdad had to place an order for 100 new missiles. Certainly enough, sometime in December, the IRIN did bring another sizeable caravan to BIK and Mahshahr: apparently, several weeks later, at least two ships said to have reached these ports at the time were attacked while underway in a southbound convoy returning to Bushehr. This happened in the course of an operation after which Baghdad boastfully announced to have attacked seven ships, and destroyed three, on the approaches to Bandar-e Khomeini. According to Western sources, the action in question began early on 11 January 1982, when the IRIN initiated a southbound convoy from BIK to Bushehr.

The available Iranian documentation emphasises that before the start of this operation, TF.421 requested that TFB.6 fly an air strike on the Iraqi positions in the Ras al-Bisheh area, on the southern tip of the Faw Peninsula. However – and in part due to the bad weather – the IRIAF reacted negatively.[33] The bad weather also prevented the IRIN from deploying the usual complement of PB.III-class patrol boats and tugboats in support of this operation, and the caravan thus moved out escorted merely by two Kaman-class missile boats. According to Western reports, at least two, possibly four Super Frelons then appeared over the Ras al-Bisheh area to launch four AM.39 Exocets. Two may have hit the Panamanian freighter *Success*: one exploded in the engine room, killing three (including the duty engineer), and badly wounded two. The ship caught fire and was abandoned, but – and contrary to usual reports in the Western media – three Iranian tugboats towed it to Bushehr for repairs.

Reportedly, on the same day the Greek bulk carrier *Annabella* hit a mine, but managed to complete the southbound voyage.[34]

The IRIN and IRIAF documentation mentions nothing even roughly similar. At 11.20hrs, and again at 14.03hrs, the MIM-23B I-HAWK site at Ammar – outside Dezful – was attacked by Iraqi Kh-28 anti-radiation missiles, and one of the IrAF Sukhois was claimed as shot down in return. However, when the Super Frelons then did appear over the Faw Peninsula, three AH-1J Cobra attack helicopters of the IRIAA were vectored in that direction. These interrupted the mission of No. 101 Squadron so much that the Super Frelons beat a hasty retreat after releasing just one Exocet. The weapon in question then caused some damage to a freighter named *Wonsbow* in Iranian documents: the background to this ship remains unknown, but it seems that the vessel managed to reach Bushehr.[35]

The only other incident that occurred during that month in the northern Persian Gulf and can be found in the IRIAF documentation was on 25 January 1982. TFB.6 lost an F-4E crewed by Colonel Mohammad Soltani and 1st Lieutenant Hossein Delhamed (callsign 'Natijeh 22'). The jet disappeared while on a combat air patrol over Khark Island and only a few pieces of wreckage believed to have belonged to it were ever found. Two days later, at 12.10hrs, the IrAF Su-22M-2Ks attacked the Ammar SAM site with Kh-28s again: this time, another Iraqi fighter-bomber was claimed as shot down. In turn, the Iraqi anti-radiation missiles passed very close by one of the HPIR fire-control radars at the Iranian site, but then detonated about 2,000 metres behind it. About an hour later, a pair of F-14s then escorted a single McDonnell-Douglas RF-4E Phantom II reconnaissance fighter on a mission over Iraq: when, around 14.45hrs, two Iraqi interceptors appeared on the scene, the lead Tomcat claimed one of them shot down by an AIM-54.[36]

3

THE YEAR OF THE CARAVANS

The flow of imports of vital commodities, as well as materials and equipment necessary for repairs and the expansion of the Iranian oil industry, and that of reinforcements for the battlefields in Khuzestan remained the crucial issue for the IRIN – and thus for the Iraqi Navy – through the rest of 1982. Correspondingly, the fighting at sea (and in the air) over the northern Persian Gulf was soon back to the intensity of late 1981.[1]

Goreh and Genaveh

According to Western sources, on 15 February 1982, the IRIN tanker *Mokran* was seriously damaged by a single Exocet while travelling in ballast (i.e. empty) from BIK to Bushehr. Moreover, on 27 February 1982 the Iranian freighter *Azadeh* was hit by a bomb and sunk during another Iraqi air strike on the port of Bandar-e Khomeini. The currently available documentation for the IRIAF and IRIN does not confirm such reports: what it does confirm is that through the same month, and even more so during March 1982, Iraqi Su-22s flew an entire series of air strikes on the Iranian oil facilities in Goreh and Genaveh, which were pumping crude to Khark. When operating under high pressure, the pumping station in Goreh especially was extremely combustible and thus highly vulnerable. The Iraqis targeted it several times during that month (and no fewer than 30 times throughout the war), mostly with unknown results. Indeed, regardless how much 'destruction' Baghdad claimed: the station was never entirely knocked out. Not only did Iranian engineers – supported by local industry – go to great extents to install temporary improvisations in order to bypass damaged or destroyed parts of the installation, but according to its managing director from the times of the Iran-Iraq War, the most that the IrAF managed at different stages in the conflict was to destroy about 25 percent of the Goreh-A, 75% of Goreh-B, and 55% of Goreh-C.[2]

A post-war photograph of one of three crude-pumping stations in the Goreh area. (NIOC)

Air strikes on the Genaveh facility were even less successful: at least 16 are known to have been flown in eight years of war, including at least two in March 1982 – without any notable success. Indeed, the IrAF was soon desperate enough – knowing that the repair of submerged pipelines was extremely difficult – to order its Su-22 pilots to carpet bomb the waters along the coastline south of Genaveh with bombs equipped with delayed-action fuses. The hope was that underwater detonations might cut the pipelines. While managing to damage the vital main line (with a throughput of 2.1 million bpd) and – for the first time ever – slowing down Iranian oil exports (the loading of several tankers at Khark took 14 instead of eight hours), the effects of this attack actually remained unknown in Baghdad. The reason was that the Iranian oilmen not only quickly repaired, but interconnected this pipeline with one of the adjacent lines: thus, whenever one of the two was cut off, the oil would continue to flow through the other.[3]

That said, all the repairs and expansions in question required yet additional imports of necessary materials, tools and machinery from abroad – and thus yet additional convoys. Moreover, the Iraqi activity in this area almost had disastrous consequences for the crew of an IRINA helicopter. On 26 March 1982, while flying a combat air patrol over the northern Persian Gulf, an F-4E from TFB.6 (callsign Tofan-B), intercepted an ASH-3D Sea King helicopter of the IRINA underway at low altitude. After misidentifying the friendly helicopter as 'an Iraqi Super Frelon', the Phantom crew turned in and opened fire with the 20mm M61A1 Vulcan gun. To the good fortune of the IRINA crew, the burst of shells narrowly missed. However, this accident made it clear that the communications between the air force and navy were still poor; that the two did not know about each other's operations, and that IRIAF crews especially had very little situational awareness.

Loss of *Setareh*

On 31 March 1982, IRINA warships escorted a convoy of 10 vessels from the ports of BIK and Mahshahr to the Bushehr anchorage. Around 13.10hrs local time, when the operation was over, and no were F-14s airborne over the northern Persian Gulf, three Iraqi Super Frelons approached from the north, and launched two Exocets. One missile hit the tugboat *Setareh* as it was anchored near the southern entrance to Khowr al-Moussa, while the other homed in on Buoy No. 28. Three crewmembers working in machinery spaces of *Setareh* were killed, while the other six were rescued by an IRIN tugboat with hull number 264. The burned-out hulk of the wrecked vessel was subsequently towed back to BIK.[4]

The loss of *Setareh* caused quite some concern and even complaints that reached Tehran. However, on 28 April 1982, the Joint Chiefs of Staff of the Iranian Armed Forces, wrote to the PMO:

> The Joint Staff is aware of the enemy's attacks and threats against the convoy of commercial ships, including the damage caused to the tug *Setareh*, and so on. In this regard, the necessary measures have been taken by the armed forces, especially the navy of the Islamic Republic of Iran using the available capacities. It has been notified that the navy prepares the necessary plans for escorting and protecting the convoys of commercial ships with the support of other forces, and carries out this important and vital task for the country of the Islamic Republic of Iran by accepting the risk. Although the enemy has succeeded in causing damage to the convoy of ships in some cases, despite all these threats, the route of the convoy of commercial ships to Imam Port and Mahshahr Port has been kept open.
>
> This headquarters has already reflected the risks of transporting goods by commercial ships to Bandar Imam and Bandar Mahshahr to the government of the Islamic Republic of Iran, and the government has accepted the risk and announced its agreement for the passage of ships on the above route.

> In conclusion, we must inform you that Islamic Republic of Iran Armed Forces will continue their efforts to protect the vital waterway, even if it cannot guarantee the safety of all the ships in the above route against all-round and real threats with 100% certainty. Therefore, in order to reduce the injuries and damage caused to the caravan of commercial ships, please order, in coordination with the Basij Economic Headquarters of the Islamic Republic of Iran, to make an arrangement so that even if possible, ships do not carry cargo exclusively for Bandar Imam [meaning BIK] and Mahshahr, and thus are not sent to these ports.[5]

Operational Order Tophan

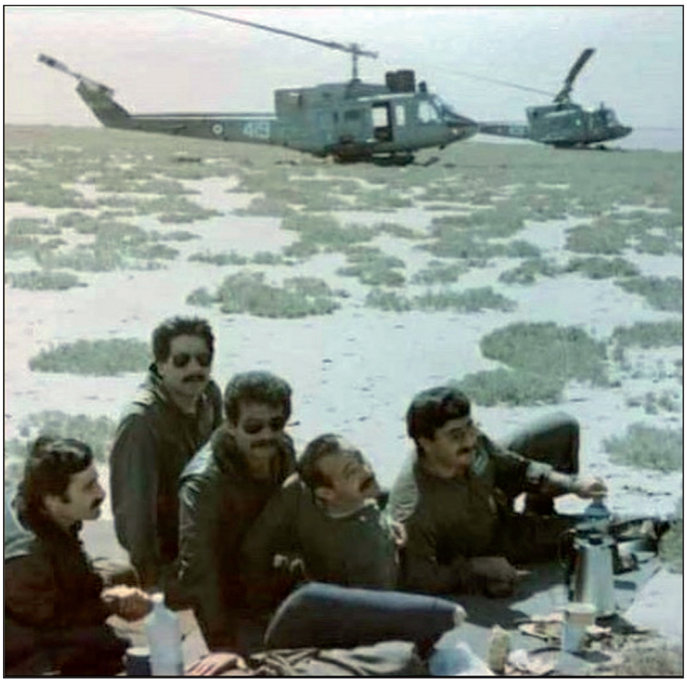
Meanwhile, in early April 1982, pending the major ground offensive Bayt al-Moqaddas, the IRIN successfully escorted another large convoy to BIK and Bandar-e Mahshahr. Out of concern that the Iraqis might mine the approaches to Khowr al-Moussa, it first conducted a mine-clearing operation: Operation Tophan. This involved MSC-268-class coastal minesweeper IRIS *Karkas* (hull number 292), ammunition ship IRIS *Sirjan* (hull number 472), one Kaman-class FAC, two 65-foot tugboats and a motor launch, two RH-53 mine-clearing helicopters, two ASH-3Ds and one AB.212ASW. On 12 and 13 April 1982, this group of surface vessels and helicopters was supported by three CAPs of F-14As from TFB.7, while a single F-4E armed with AGM-65s stood on 15-minutes alert at TFB.6.[6]

With such good protection, the caravan reached its designation without any incidents. Four days later, on 17 April 1982, it was about the time for the empty merchants to return to Bushehr. Therefore, a convoy of 14 ships was organised, including vessels: *Iran Hemat*, *Iran Abad*, *Iran Jomhouri*, *Juzken*, *Santa Yola*, *Sambow Banner*, *Gono Victor*, *West Ben*, *Diniant* and *West Marine*.

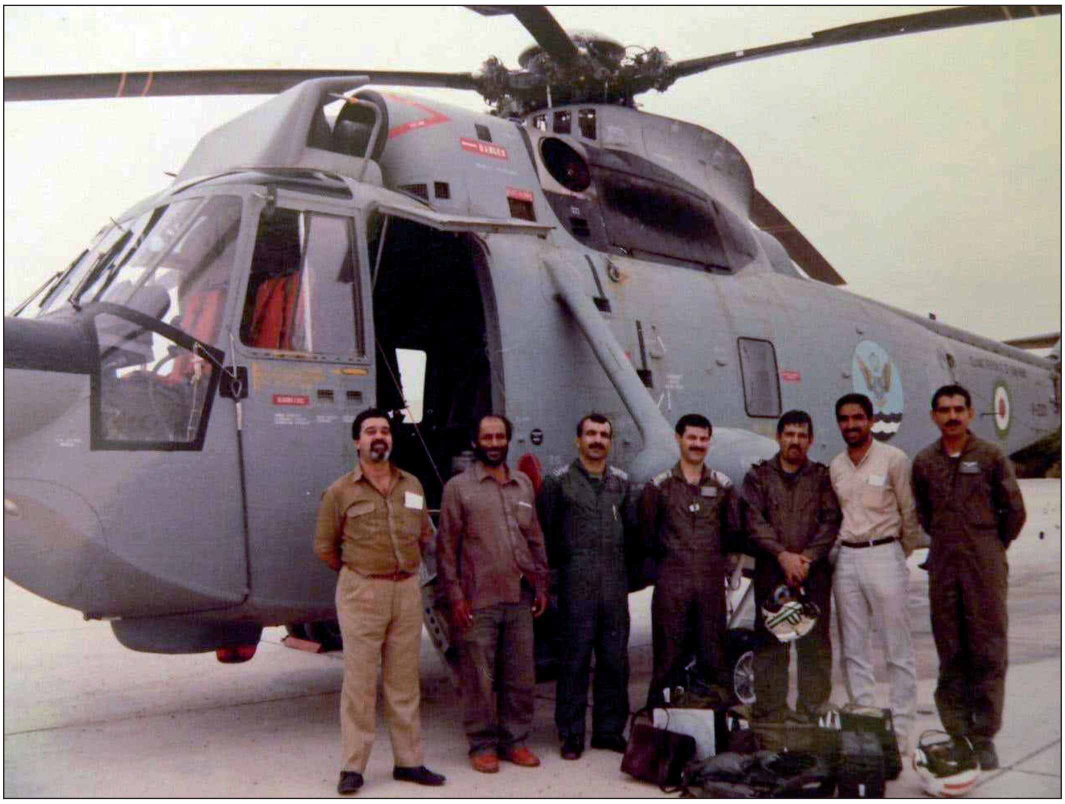
Supporting the Push into Iraq

In preparation for Operation Bayt ol-Mogaddas, and within the frame of Operation Torpedo-2, for 16 April 1982 the IRIN planned to escort a caravan of 14 vessels from the Bushehr anchorage to BIK and Mahshahr. Interestingly, the IRIN documentation lists only the 10 merchants involved, but none of the four tankers known to have travelled with this convoy: *Iran Hemat, Iran Abad, Iran Jomhouri, Juzken, Santa Yola, Sambow Banner, Gono Victor, West Ben*, *Diniant* and *West Marine*.

The plan was for TFB.6 to initiate this operation by striking the TRS.3004 Sea Tiger radar at the Mina Khowr al-Amiyah platform with two F-4Es, after which the IRIN would conduct a minesweeping operation on the approaches to Khowr al-Moussa for 48 hours. However, the plan fell apart before it could be realised. Operation Bayt ol-Mogaddas was initiated on 16 April, and all the available interceptors and fighter-bombers of the IRIAF were involved in supporting it. Moreover, on 18 April 1982, the NIOC deployed its ULCC *Shoush*

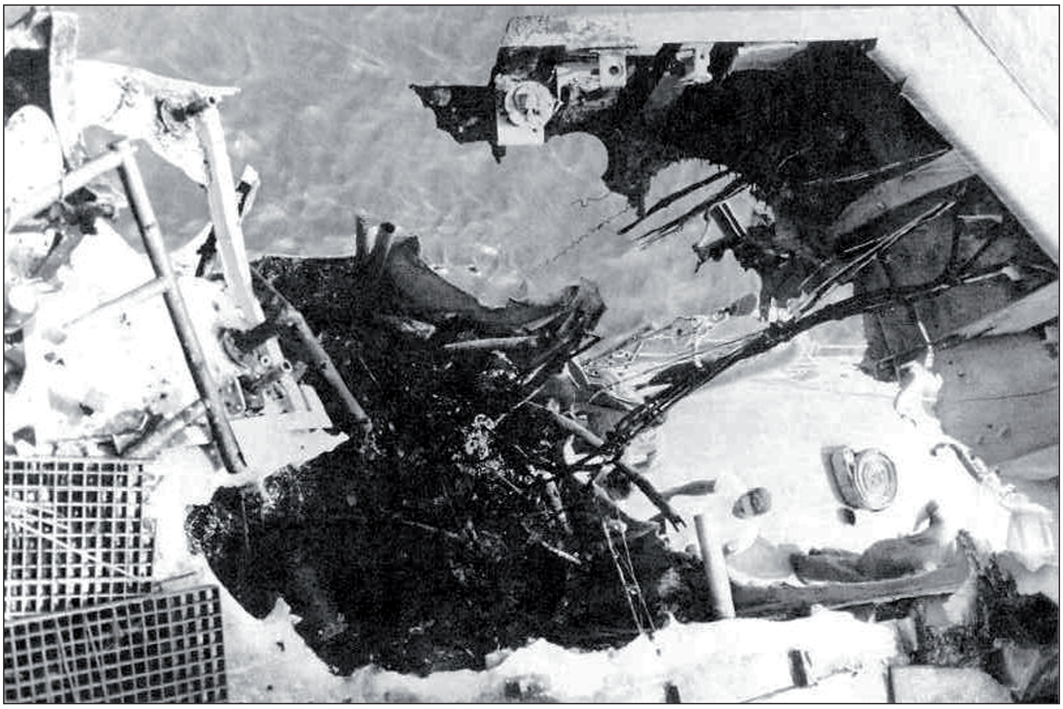


Taken sometime in 1982, this photograph shows the crews of two AB.212ASWs of the IRINA, waiting at the FOB on Boneh Island for the call to escort another caravan. Visible from the right to the left are: Maqsood Nik Payam (later reached the rank of Admiral), Qasim Heydari, Amir Ashtiani, Hamid Mirghazati and Parvis Khosh Ahang. Notably, both AB.212s in the rear were armed with AS.12 guided anti-tank missiles frequently deployed against naval targets, and the helicopter in the foreground – full serial 6-2419 – was equipped with the Canadian-made LN-66 search radar, installed in the large black cylindrical housing atop the cabin. (Sirous Ebrahimi Collection)



A crew of the ASH-3D 8-2301, with their freshly repainted 'SH' (colloquial designation for ASH-3D Sea King helicopters of the IRINA), seen in 1982 or 1983. Continuously flying reconnaissance ahead of every caravan and deploying chaff to decoy the Iraqi radars and radar-homing anti-ship missiles, they were constantly involved in some of the most dangerous activities related to Iranian convoy operations. (Sirous Ebrahimi Collection)

A crewman of one of the Bell 206s of the IRIAA assigned to convoy protection, seen during a break between two sorties. (Sirous Ebrahimi Collection)



A view from the bridge down at the deck of one of the merchants hit by an Exocet, with typical damage to the hull and superstructure. (PMO)

from Khark to Sirri Island, to act as a shuttle tanker and transfer the crude to vessels of export customers: obviously, this required protection from IRIN warships.[7] Finally, on 21 April 1982, the merchant *Iran Nahad* arrived in the Bandar-e Abbas area with a large load of arms and ammunition from Europe. The movement of this vessel was considered of such importance that even all the P-3F operations were reserved for its protection (and indeed, the 71st Anti-Submarine Warfare Squadron, commanded by Captain Nasser Sayed Karimi, flew four sorties in support of *Iran Nahad*).

That said, the delay enabled the IRIN to start embarking Soviet-made ZU-23 twin-barrel 23mm anti-aircraft guns – manned by navy personnel – on selected merchants involved in the convoy. Moreover, vessels regularly involved in operations Crocodile and Torpedo-2, began receiving IRIN teams armed with 9K32 Strela-2 man-portable air defence systems (MANPADS) (better known in the West under the ASCC/NATO reporting name 'SA-7 Grail', and colloquially known as 'Sahand' – 'Snake' in Farsi – by Iranian sailors). The latter were operated by six-man teams of the British-trained IRIN Special Boat Service (SBS). The next caravan was thus not only better protected than ever before, but also became a nocturnal operation. Initiated at 01.00hrs of 22 April 1982, it included only eight cargo ships and three oil tankers, of which the names of following vessels are known: *Iran Adalat*, *Iran Vahdat*, *Iran Sokan*, *Faizi*, *Lead Bone*, *Sheila, Thoralebe* and *Sambow Daily*.

All ships reached their destinations without problem, and the IRIN then planned to escort 11 empty vessels from BIK back to Bushehr. While the crews of three South Korean vessels (*Good Sun*, *Nickolas*, and *Neptune*) refused to leave the port, the other eight were brought to the safety of the Bushehr anchorage undisturbed.

Meanwhile, on 25 April 1982, Su-22M-2Ks of the IrAF deployed their Kh-28 anti-radiation missiles to knock out the HPIR fire-control radars of five MIM-23B I-HAWK sites deployed in the Khuzestan province. Determined to stop such operations, Colonel Bahram Houshyar developed new tactics in which SAMs cooperated with F-14s. Knowing the Iraqis tended to launch their Kh-28s from maximum range of 70–80km, he ordered all the commanders of SAM sites to keep their radars on standby and wait until the Iraqis had spent their anti-radiation missiles. Then, on Houshyar's order, F-14As would move forward from their CAP station and power-up their AWG-9 radar. The usual Iraqi reaction in such case was to jettison all their bombs and fly straight back to Iraq: if not, they would be engaged both by the Tomcat and the I-HAWK SAMs – and from well within the engagement envelope of their armament. In this fashion, the IRIAF claimed to have shot down up to 55 Iraqi fighter-bombers during Operation Bayt ol-Mogaddas: obviously, this was a massive exaggeration. Nevertheless, the IrAF did suffer about a dozen losses and ceased challenging the IRIAF's air superiority over the battlefields during this offensive. This was one reason why when the IRIN then launched its next caravan operation at 08.00hrs on 2 May 1982, it encountered no opposition whatsoever (other reasons will be explained in subsequent chapters). In total, nine vessels were escorted back to Bushehr, including: *Thoralbe*, *Manolis*, *Sambow Daily*, *Sheila*, *Iran Adalat*, *Faizi*, *Maron*, *Tabriz* (tanker) and *Scape Mount* (tanker).

The situation began changing only two weeks later. At 06.00hrs on 16 May 1982, ships involved in a caravan under Operation Torpedo-2, began picking up their anchors. This time, a total of 12 merchants were involved in the northbound convoy: *Nicolas*, *Sun River*, *Midas Apollo*, *Good Ocean*, *Sunbow Champion*, *Good Lord*, *Pardesi*, *Iran Emmat*, *Iran Eslami*, *Mokran* (tanker), *Tabriz* (tanker) and *Scape Mount* (tanker). At the same time, a caravan of eight ships departed BIK, including: *Iran Shahid*, *Iran Sokan*, *Iran Vahdat*, *Neptune*, *Jeans Bone*, *Lead Bone*, *Roberta One* (tanker) and *Shirvan* (tanker).

In addition to the usual set of two Kaman-class FACs, and various minor vessels and launches, this operation was supported by one Bell 206 scout and two AH-1J Cobras of the IRIAA. Initially, all vessels progressed very well, until around 12.45hrs when the two F-14As providing top cover withdrew for in-flight refuelling. Of course, the Iraqi Unit 128 was carefully monitoring their activity all the time, and – rather unsurprisingly – it did not take long before Super Frelons appeared over the Faw Peninsula to launch Exocets. Two of their missiles hit vessels of the convoy returning to Bushehr: *Jeans Bone* was only lightly damaged and capable of completing the voyage on its own, but *Iran Vahdat* lost power and had to be towed by tugboats *Keman* and *Poolad* to Bushehr. During this attack, TF.421 requested that TFB.6 launch an immediate air strike on the Mina Khowr al-Amiyah and Mina al-Bakr platforms, but the air force replied that this was not necessary nor would change the situation: the IRIAF simply declared the fact that the Tomcats required in-flight refuelling as the reason for the damage to the two vessels.

Although the (lack of) cooperation of TFB.6 thus let down TF.421 once again, on 1 June 1982, the commander of the IRIN wrote an encouraging letter to the JCS:

> In the last 12 months, the navy was able to move 580 merchant ships and oil tankers to Bandar Imam. Only 8 were damaged by enemy missiles. The loss ratio is thus less than 2%.[8]

Troubles in Baghdad

Meanwhile, a series of dramatic events shook the highest levels of power in Iraq. The Iraqi oil industry was still feeling the blows it received in October and November 1980 when, in spring 1982, the government in Damascus shut down the pipeline to the Syrian port of Banias on the Mediterranean coast. Although left without about 40 percent of its major source of income, Baghdad initially continued spending lavishly – not only for the war with Iran, but for development too. Unsurprisingly, it rapidly drew down reserves accumulated before the war: by the end of 1982, the country was unable to continue paying its debts, and became dependent on credit from allies on the western side of the Persian Gulf. Driven by the growing suspicion over Iraq's ability to prevent a spillover of the war with Iran, and – because of their sizeable Shi'a populations – always sensitive to Tehran's threats to 'export' its 'Islamic Revolution', in February 1981 six Arab countries of the Persian Gulf reached the decision to form the Gulf Cooperation Council (GCC). Established by Saudi Arabia, Kuwait, Bahrain, Qatar, Oman and the United Arab Emirates, the GCC was officially to serve the means of pooling resources and safeguarding stability – and thus became involved in supporting the Iraqi war effort against Iran – directly and indirectly: by the end of the year, Riyadh and Kuwait City each granted loans worth US$6 billion to Baghdad.[9]

Perfectly aware of their ability to manipulate Western decision-makers through offering prospects for lucrative arms deals, the rulers of the GCC then went a step further and began playing the US government and those of Western Europe against each other by making major orders for ever more arms. Eventually, this led to the decision to sponsor additional Iraqi purchases of Mirage fighters from France: on 16 February 1982, the contract for Project Baz-3 was signed in Paris, stipulating an expansion of the original option for 18 Mirage F.1EQ-4s to a total of 24, and then the delivery of 20 additional aircraft of an entirely new sub-variant: the Mirage F.1EQ-5, compatible with the AM.39 Exocet anti-ship missile. Atop of this, France accepted an Iraqi order for Dassault Mirage 2000IQ strike fighters, which the local defence sector was to develop sometime in the late 1980s and early 1990s. The essence of all these complex deals was for Saudi Arabia and Kuwait to pay for the French-made aircraft and their armament (as well as training of Iraqi crews in France) by deliveries of crude oil.[10]

Saddam then made a major mistake: always mistrustful of the French intentions to deliver him their 'best' in technologies, he demanded all these contracts to include a secret paragraph obliging the French to pay US$10 million for each Mirage fighter shot down by Iran – to his personal bank account in Switzerland. Rumours always spread faster than humans can travel: when this became known in Baghdad, enraged top brass of the Iraqi armed forces threatened to launch a coup. From their point of view, the strongman in Baghdad was not only 'squandering billions' for aircraft many of them considered 'too vulnerable to combat damage' (especially in comparison to the Soviet-made Sukhois) but was blatantly enriching himself at the expense of Iraq losing the war. Of course, the generals in question needed evidence for their standpoint: this was available only in the form of the Iraqi middleman involved in negotiating all the contracts. Therefore, they closely followed his trip back to Iraq – by aircraft from Paris to Kuwait City, and then by car to Baghdad: however, shortly after entering Iraq, he was arrested and disappeared.[11]

To Saddam's good fortune, all of his resulting problems were solved before long by the Iranians: their Operation Bayt ol-Moqaddas proved highly successful: it not only resulted in the liberation of the port of Khorramshahr, on 23 May 1982, but in the biggest defeat of the Iraqi armed forces in the war by that point in time. The strongman in Baghdad exploited this opportunity to have over 300 top military commanders demoted or dismissed, while somewhere between three and 12 were sentenced to death. Moreover, in an attempt to whitewash his agreement with the French to pay him for every Mirage shot down by Iran, he severely curtailed IrAF operations, imposing the order that, henceforth, even all the reconnaissance sorties by Mirage F.1EQ-2s equipped with COR-2 pods had to be authorised by the GHQ in Baghdad.[12] As a result, the intensity of the IrAF's operations against Iranian convoys and the oil industry decreased by a magnitude through the second half of 1982.

Air-Sea Battle of 6 June 1982

At 08.00hrs on 6 June 1982, a caravan of 11 merchants and the tankers *Shirvan* and *Maron*, carrying diesel and gasoline, respectively, reached Buoy No. 2, on the southern approach to the Khowr al-Moussa waterway. At the same time, a convoy of seven commercial vessels and three oil tankers commenced leaving the port of BIK. The two caravans were protected by two Kaman-class FACs, two gunboats, two armed motor launches, four tugboats, and four helicopters. Supervised by the commander of TF.421, Captain Kharaman Malek Zadeh (appointed in place of Captain

A still from a post-war video, showing an F-4E in the process of firing an AGM-65A Maverick missile. The weapon was heavily utilised in repeated attacks on the two Iraqi offshore loading terminals in the northern Persian Gulf, all flown in response to repeated requests from TF.421, and frequently despite reluctance by the command of TFB.6. (Tom Cooper Collection)

The Liberian bulk carrier *Good Luck*, seen after being towed to Sharjah, in the United Arab Emirates, in 1984. Not clearly visible in this photograph is the extent of the damage, which completely ruined the bridge and machinery spaces, at the rear of the ship. (PMO)

Captain Farid Aghadel, one of several officers commanding caravans in 1981–1983. (IRIN)

Mustafa Madani Nejad on 18 October 1981), the immediate convoy commander was Captain Farid Aghadel. As usual, one of the escorting warships of the IRIN carried the liaison officer of the IRIAF, responsible for coordination with the air force.

At 10.46hrs, as the two convoys were passing each other, a *Khoofash* intelligence-gathering aircraft of the IRIAF detected radio emissions from a pair each of Iraqi MiG-23s and Mirage F.1s, and issued a warning that these were airborne over the Faw Peninsula. TFB.6 promptly advised a pair of F-14As (callsigns Simorgh 52 and Simorgh 53) on Daylan Station to turn north-west. The Tomcats engaged at 10.57, and one minute later one Iraqi fighter jet was reported as shot down by a single AIM-54A Phoenix air-to-air missile at coordinates 25° 29” N, 035° 048”E – east of Bubiyan Island and 10 nautical miles (18.5km) away from the caravan. The *Khoofash* crew then reported that all the calls from the Iraqi ground control station in Faw for the missing jet remained unanswered. Nevertheless, the Iraqis continued pushing. At 11.09hrs, the *Khoofash* reported that a single Super Frelon helicopter, escorted by a pair of MiG-23s, was approaching the caravan from the west. Before the Tomcats could turn and engage, the helicopter fired a single AM.39 Exocet missile. At 11.20hrs, the weapon hit the Greek merchant *Good Luck* as it was passing Buoy No. 26 at the mouth of Khowr al-Moussa. With a crew of 23, the vessel was the sixth ship in the caravan, carrying a load of 26,963 tons of chemical fertilisers. The warhead detonated, causing a conflagration that killed three, wounded five, and wrecked the vessel: the tugboats were merely capable of towing the burning wreck away from the mouth to keep the canal free for the exiting convoy.

Shortly after, an IRIN SIGINT post reported an Iraqi vessel approaching the Mina al-Bakr offshore platform. Therefore, at 11.35hrs, the IRIAF scrambled an F-4E (callsign Sohail-B) armed with AGM-65 Maverick missiles from Bushehr. The crew of the Phantom found its target and fired a single missile, reporting that it scored a hit, leaving the target enveloped in smoke and fire. However, during this attack, another pair of Mirage F.1s appeared, and succeeded in dragging the Tomcats away. The F-4E was thus left alone just at the time two MiG-23s appeared nearby and the Phantom crew was forced to beat a hasty retreat back to TFB.6.

The Iraqis continued attacking, but their second Super Frelon section appeared much too late on the scene. Nevertheless, its crews then launched no fewer than four Exocets. Of course, none of these found an intended target but at least one flew all the way to the Bahregansar offshore platform 40 kilometres further east, where it hit and blew up a fuel tank. One crewmember was killed and eight wounded. Thus, the Iranian operation was deemed only partially successful: while managing to bring another convoy to BIK and one out, and despite shooting down an Iraqi fighter, and possibly damaging a vessel of the Iraqi Navy, the Iranians lost a large consignment of fertilisers and one of their offshore oil rigs.[13]

At 01.30hrs on 21 June 1982, the IRIN initiated the next convoy operation. This time, nine merchants and three tankers were in the northbound caravan: *Iran Vojdan*, *Iran Jahad*, *Iran Jomhouri*, *Arun Kamal*, *Sea Payal*, *Endurance Express*, *Tabriz* (tanker), *Scape* Mount (tanker), and *Yanixilas* (tanker). In turn, 10 ships were escorted south from BIK to the Bushehr anchorage: *Iran Eslami*, *Iran Okhovat*, *Jami*, *Good Ocean*, *Torhaven*, *Eastern Legend*, *Alexander P*, *Pardesi*, *Shirvan* (tanker), and *Maron* (tanker). Well-protected by at least four warships, two F-14s, and two F-4Es (the latter armed with AGM-65A Mavericks), both convoys completed their voyages safely by 10.00hrs. Arguably, *Alexander P* suffered a malfunction of its machinery while passing Buoy No. 2, but accompanying tugboats towed it to the Bushehr anchorage without further incident.

Slightly over two weeks later, at 06.30hrs in the morning of 7 July 1982, the IRIN escorted a convoy of 16 merchants and tankers to BIK: *Iran Enghelab*, *Iran Adalat*, *Iran Shaheed*, *Iran Azadi*, *Iran Esteghlal*, *Iran Entekhab, Faizi*, *Leenioch*, *Good Challenger*, *Sabow Apex*, *Haeyun Gold*, *Maron* (tanker), *Shirvan* (tanker), *Dis Cariya* (tanker), and *Tralbe* (tanker). In turn, nine merchants and two tankers travelled back to Bushehr without problem.

Despite this string of Iranian successes, for unknown reasons, the next caravan was initiated only on 20 July 1982. Once again conducted under the codename Tophan, it raised anchor at 06.30hrs in the morning, and included eight merchants and two tankers: *Iran Gheyamat*, *Iran Shehadat*, *Iran Meezan*, *Iran Bayan*, *Samboe Vebs*, *Kambarin*, *Binga Arenda*, *Osman Aksoy*, *Tabriz* (tanker), and *Scape Mount* (tanker). At the same time, 10 merchants and tankers were returned from BIK to Bushehr. No Iraqi presence was detected but around 08.53hrs, two consecutive, powerful detonations were heard: the Iranians concluded that Iraqi Super Frelons had launched two Exocets but from much too long a range and that both crashed into the sea after running out of fuel. Operation Tophan was concluded at 10.15hrs, with all ships reaching their destinations safely.

In the course of four months from April until July 1982 the IRIN escorted five convoys to BIK and Mahshahr and five back to Bushehr, and only one of these may have been attacked by the Iraqis, and then ineffectively. This is not to say that the Iraqis did not try. Indeed, they claimed to have damaged the bulk carrier *Iran Vahdat* on 30 May and the Liberian bulk carrier *Good Luck* on 6 June. However, according to available Iranian documentation, neither ship was attacked on the given dates: indeed, according to IRIN documentation, there was no movement of Iranian warships or civilian vessels in the area north of Khark on those days.

Bloody Monday

On Monday 9 August 1982, the IRIN initiated the next caravan. Although officially conducted as part of Operation Torpedo-2, it began at 03.00hrs in the morning, by when a pair each of F-14s and F-4Es was airborne over the northern Persian Gulf. The ships underway to BIK and Mahshahr were: *Iran Skan*, *Aegis Spanic*, *Antigoni*, *Rea-B*, *Pernikipus*, *Nazly*, *Toulip-B*, *Litison Pride*, *Evagelia S*, *Nalanda*, *Mokran* (tanker), and *Shirvan* (tanker). As usual, at the same time a convoy of 12 empty vessels was to return from BIK, including: *Iran Entekab*, *Iran Gheyamat*, *Iran Bayan*, *Iran Azadi*, *Komarine*, *Good Challenger*, *Haeyun Gold*, *Sambow Banner*, *Sambow Apex*, *Binga Arenda*, *Scape Mount* (tanker), and *Tabriz* (tanker).

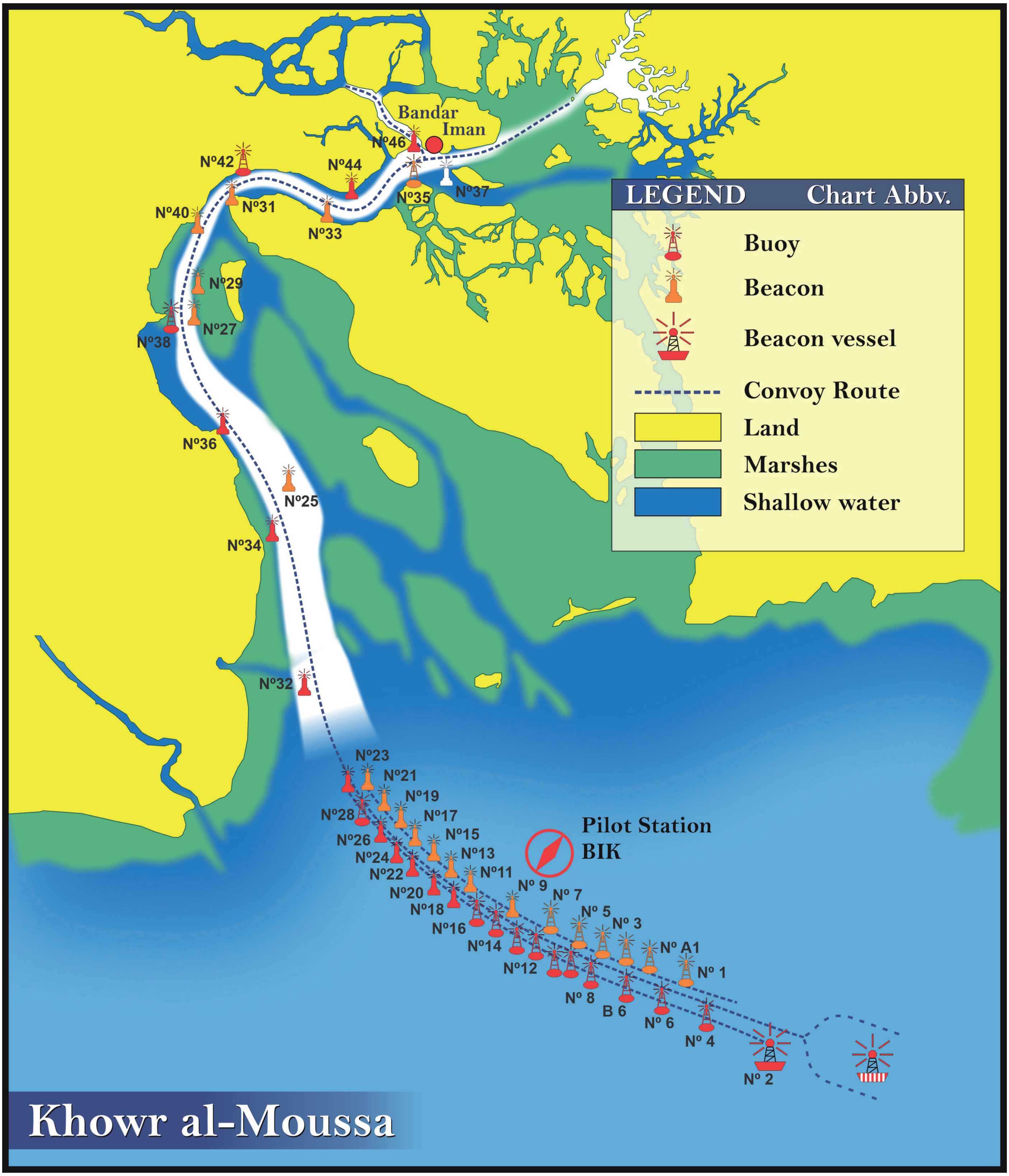
For unknown reasons, this operation proceeded at a slow pace and around 12.30hrs the last two ships of the inbound and outbound convoys – *Litison Pride* and *Sambow Banner*, respectively – were still underway through the most critical part of their voyage: the sector between Buoys No. 23 in the north, and No. 2 in the south. At that point in time, both came under Exocet attack: the South Korean *Sambow Banner* was hit first, and the IRINA helicopters rushed to evacuate the crew of 26 and three Iranians: of the latter, one was a pilot of the PMO, another was a liaison officer of the IRIN, while the third was armed with Soviet-made SA-7 MANPADS. About a minute later, another Exocet homed in on *Litison Pride* (a ship of 15,000grt that carried 13,992 tons of sugar). Eventually, *Sambow Banner* was gutted by the resulting conflagration: the ship was set aground and then abandoned. The fire aboard *Litison Pride* was soon out of control too and the ship sank after veering out of the dredged canal. By 19.00hrs, when further search and rescue operations were concluded, the Iranians had managed to evacuate everybody from *Litison Pride*, but only 18 from *Sambow Banner*: one body was recovered from the water. Petty Officer Arefi Basirt, one of a six-man SBS team operating SA-7s aboard *Sambow Banner*, was one of no fewer than 13 crewmembers and Iranian personnel declared 'missing in action'.

Saddam's Threats and the IRIN's Problems

Encouraged by this success, on 12 August 1982, Saddam Hussein went as far as to declare the entire northern Persian Gulf – including Bandar-e Khomeini, Khark and Bushehr – a 'war zone'. He announced that any ships moving there, Iranian or neutral, would be attacked and destroyed, indiscriminately. Eight days later, Saddam went as far as to boast that, '… for foreign tankers it is impossible to load crude oil at Khark.' Therefore, on the next day, the Prime Minister of Iran, Mohammad-Reza Mahdavi Kani, explicitly ordered the PMO and IRIN to escort a Norwegian tanker to Khark, load it with crude there, and escort it back to the Straits of Hormuz. This operation was concluded over the next 72 hours.

Once free of propaganda-related tasks, TF.421 returned to more pressing issues. At 18.00hrs on 3 September 1982, the next caravan raised its anchors. This time, 10 commercial vessels, three tankers and the naval supply ship *Dayyer* were to travel to BIK and Mahshahr, while six merchants were to be returned to Bushehr. Unusually, they were escorted by frigates *Alvand* (hull number 71) and *Alborz* (72), two PF-103-class corvettes and several minor vessels. First, the northbound convoy was brought into a position between Buoys No. 32 and 34, west of Genaveh. Then, at 07.00hrs of 4 September – as the first ship of the southbound caravan passed Buoy No. 28 on the way out of Khowr al-Moussa – the vessels raised their anchors again, and in complete radio silence, using light signals only, began organising a column. Despite Iranian caution, the Iraqis knew that something was going on. This was indicated by reports from multiple FASHA COMINT/SIGINT stations and the IRIAF radar site at Omidiyeh. Starting from 06.35hrs, these reported the near-constant presence of Iraqi MiG-23s and Mirages over the Faw area. By 07.17hrs, two Osas were known to have been moving down Khowr Abdallah; at least one Super Frelon was airborne over the Faw Peninsula, and the number of enemy jets reported as airborne over southern Iraq grew to a degree where TF.421 ordered all movement to stop.

Eventually, the Iraqis made the next move: before the frigate *Alborz* was able to approach them, the two Osas launched all of their eight P-15 missiles, followed by the Super Frelon launching at least one Exocet. At 07.28hrs, the leading ship from the north-bound convoy, *Mar Transporter* (underway under a Turkish flag, with a load of 17,103 tons of iron from Spain) was hit while about four nautical miles (7.4km) south of Buoy No. 2, and then by two missiles in quick succession. Immediately after, the tanker *Scape*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Nº A1
Nº12
Nº 1
Nº 8
B 6
Nº 6
Nº 4
Nº 2
Pilot Station BIK
LEGEND
Chart Abbv.
Buoy
Beacon
Beacon vessel
Convoy Route
Land
Marshes
Shallow water
Khowr al-Moussa

A map of the Khowr al-Moussa waterway, showing positions of all the buoys, beacons and beacon vessels as of 1980–1986. The stretch between Buoy No. 23 in the north (at the mouth of Khowr al-Moussa) and Buoy No. 2 in the south, was the area where the majority of Iraqi missile strikes of 1981 and the first half of 1982 took place, which is why it became known as the 'danger zone' amongst Iranian sailors. (Map by Anderson Subtil)

Mount reported a missile missing it narrowly before crashing into the water. Correspondingly, the entire caravan was ordered to make a 180-degree turn and return to the Bushehr anchorage at best speed. Helicopters of the IRINA and the Kaman-class missile boat *Tabarzin* (P232) recovered 25 crewmen from *Mar Transporter*, but one died later on. The skipper of the merchant reported that four others were killed by missile hits, two of them in the engine room.[14]

With both north- and southbound caravans stalled, and two ships already hit, TF.421 demanded that the IRIAF clear the way. At 08.30, a pair of Maverick-armed F-4Es was scrambled from TFB.6 to strike the Iraqi radar at Mina Khowr al-Amiyah, but at 08.49hrs their crews reported that they must abort the mission because of a heavy concentration of Iraqi interceptors above al-Faw. Another pair of Phantoms was scrambled, and at 09.30hrs, they scored hits with

The crew of the Greek freighter *Evagelia S* reported that their ship had hit a mine and had to be abandoned. An inspection by the IRIN salvage team concluded that the ship was actually sabotaged by its own crew in order to enable the owner to cash-in the resulting insurance. (PMO)

AGM-65 missiles on both Mina Khowr al-Amiyah and Mina al-Bakr, only to be chased back to Bushehr by at least a pair of Mirages. Eventually, the Iraqis withdrew their interceptors only around 13.35hrs, when the IRIAF ordered its F-14s to attack them. With this, both the north- and southbound convoys were, finally, free to complete their voyage. The IRIN report to the JCS concluded: '…Considering the amount of threats on the mentioned day, in the future, a passage of caravans in their current fashion will be associated with high risks.'

This was confirmed before long: during the night from 10 to 11 September, at least one Iraqi Super Frelon ventured well to the south before detecting IRIS *Zaal* as this was assigned to TF.643 and on patrol about 9nm (16.7km) from Khark. The Iraqi crew launched at least one missile, however, this Vosper Mk.5-class frigate was better equipped than civilian merchants and thus detected the threat in time. It turned into the threat, fired off chaff and brought all of its artillery to bear. When the Exocet was detected, it was shot down by gunfire, less than one mile from the ship.

IRIN Statistics for March 1981 – September 1982

In September 1982, TF.421 prepared statistics about convoy operations in the Persian calendar year 1360. Indeed, the report in question covered not only the period between 20 March 1981 and 20 March 1982, but also the first six months of the following year – i.e. from 20 March 1982 until 22 September 1982. Accordingly:

1) Total amount of goods imported via the port of Bandar-e Abbas: 6,200,000 tons
2) Total amount of goods imported via the port of BIK: 3,500,000 tons
3) Total amount of goods imported via the port of Bushehr: 800,000 tons
4) Total number of ships escorted in caravans from 20 March 1981 to 20 March 1982: 506
5) Total number of ships escorted in caravans from 21 March 1982 to 22 September 1982: 190[15]

Cheating Owners

Not having any other solution immediately to hand, for a while at least the IRIN was dependent on the moment of surprise. At 04.00hrs on 13 September, its warships prepared a convoy of two tankers and three merchants from BIK and Mahshahr, and escorted it at best speed out of the danger zone. Involved were: *Evagelia S*, *Penikipus*, *Tulip-B*, *Nazly* and *Nlanda*. The operation took the Iraqis so much by surprise, that their navy did not even try to send its Super Frelons. However, Basu's ground crews and pilots at Wahda were keen to exploit the opportunity. Between 08.22 and 08.56hrs, as the last ship of the convoy, *Iran Eteghad*, was about to pass Buoy No. 2 and IRIAF F-14s were already on the way back to their base, four Su-22s appeared and attacked with 57mm unguided rockets. While most of their fire missed, several rockets did hit the bridge of *Iran Eteghad*, shattering windows. By that point in time, all five vessels were well on the way to reaching the Bushehr anchorage safely. However, the crew of the Greek-owned *Evagelia S* then reported having hit a mine and this having caused flooding of the engine room: the ship veered out of the convoy and dropped anchor about three miles north of Buoy No. 2 before the crew abandoned it. After evacuating the Greek sailors, around 15.00hrs IRINA helicopters deployed a team of IRIN officers to investigate. The leader of this team reported that valves in the engine room were open, and that it was full of water, which caused a list of 11 degrees. However, there were no traces of any kind of attack or damage. Eventually, Iranian investigation revealed that the owner of *Evagelia S* preferred to declare the ship as CTL (constructive total loss), and cash the resulting insurance.[16]

With such ad-hoc and quickly-executed operations proving highly successful, late on 17 September 1982 the IRIN prepared another, similar operation, including a caravan of only four ships from Bushehr to BIK. This included the vessels: *Iran Emamat*, *Iran Jomhouri*, *Aegis Sonic* and *Aegis Scope*.

Once again, there was no reaction from the Iraqis, and the first three vessels were well on the way to reach Buoy No. 23 without any problems. However, *Aegis Scope* was lagging behind so much that it was soon clear it could not reach even Buoy No. 2 before 23.30hrs. Therefore, TF.421 ordered it back to Bushehr. As the tugboats were busy turning the Greek vessel around, the Iraqi TRS.3004 radar at Mina al-Amiyah had enough opportunity to not only detect it but to report it to Umm Qasr. In turn, the ground crews of No. 101 Squadron thus received enough time to prepare two Super Frelons for attack. Around 07.55hrs, two of these launched Exocets: one hit *Iran Jomhouri* in the bow, the other homed in on the stern of *Iran Emamat*. However, with Iranian crews being well-trained and prepared for such eventualities, there were no casualties. Indeed, damage in both cases remained limited and the mobility of neither ship was impaired. Thus, the entire convoy reached BIK effectively on time except for *Aegis Scope*.

Kabi in Place of Janabi

Despite growing concerns within the staff of the IRIN – and TF.421 in particular – there is little doubt that up to that point, the activity of the Iraqi navy and air force over the Persian Gulf remained rather limited. Unknown to the Iranians, the situation was to experience a dramatic change, and that by accident. In summer 1982 Saddam Hussein re-appointed the loyal – but passive – commander of the

An Iraqi mine that broke lose from its anchor chain, and was then found by the Iranians. (Sirous Ebrahimi Collection)

navy, Janabi, to the Political Guidance Department at the GHQ in Baghdad and replaced him with Lieutenant General Abid Mohammed al-Kabi. Having joined the service in 1964, Kabi had served as the Director of Training and then Director of Operations, and proved a much more dynamic commander, determined to strike against Iran at every opportunity. Indeed, it can be said that the task of interdicting the naval traffic to Bandar-e Khomeyni became a sort of obsession.[17]

Upon assuming his new command, Kabi was forced to realise that there was little he could do to significantly improve the condition of the navy: a total of four frigates, six corvettes and one replenishment ship were still under construction in Italy, but the government in Rome imposed an arms embargo upon Iraq. Even without that embargo, it is highly questionable if the Iraqi Navy could have found a way to bring any of them safely through the Hormuz Straits and then up the entire length of the Persian Gulf to Umm Qasr. The solution was slightly simpler in the case of nine RV-90-class patrol boats constructed in Yugoslavia: they were imported via the Jordanian port of Aqaba in 1983 and assembled in Iraq. Eventually, they were to prove the workhorses of the navy. That said, for the first few months of his tour of duty, Kabi found no alternative but to continue fighting with what was on hand: primarily the remaining Osa missile boats and HY-2 Silkworm missiles. While inventorying the depots of the navy though, he did find 121 Russian-made KB.1 moored mines with contact fuses and decided to find a way to make use of them. The solution was to modify two Super Frelons through the installation of steel rails needed to roll the mines off their rear loading ramps. It was in this fashion that in September 1981, the Iraqi Navy launched its first effort to mine the approach to Khowr al-Moussa.

Initially, the measure proved fruitless: not only did the IRIN quickly adapt and began conducting mine-clearing operations, but numerous mines broke lose in 1983 and drifted southwards – usually straight for the ports of major Iraqi allies. The first was discovered and detonated off the Saudi port of Ras Tannurah on 8 June 1983. Several followed, and on 28 July the port had to be closed pending their clearing. Other mines were spotted off Bahrain between 14 June and 14 July 1983, while the Royal Qatari Navy detected and destroyed at least one on 23 July. Overall, their impact remained extremely low.[18]

Reinforcements for the IRIN

Ever since April 1979, the IRIN had been cut off from its primary sources of arms and ammunition: Great Britain and the USA. Just like the IRIAF, the service thus fought the first three years of the war with Iraq with what it had in terms of personnel, equipment, arms and ammunition. That said, the IRIN did, gradually, manage to acquire at least a few additional support vessels. On 8 October 1980, it requisitioned the tankers *Mokran* (25,246dwt) and *Maroun* (25,651dwt), whose foreign crews had fled early during the war. Officially assigned to the National Iranian Tanker Company (NITC), they were deployed to move fuel, oil and lubricants for the navy, air force and army. Two replenishment ships – IRIS *Bandar Abbas* and IRIS *Bushehr* – were added to the fleet to haul supplies. Indeed, with its hull painted in its distinct white colour, the latter became well known to the Iraqi navy and air force, and a much sought-for target, but was never damaged during the war.

As mentioned in Volume 1, in 1973–1974, Iran placed an order for a total of 12 La Combattante II-class fast attack craft in France. The first nine vessels were all delivered by September 1978. However, when Tehran failed to pay for them, the last three were held back in France. In mid-1981, the French, US and Iranian governments reached an agreement and the vessels in question – named *Kanjar* (P230), *Neyzeh* (P231), and *Tabrazin* (P232) – were granted permission to leave Cherbourg on 15 August. After crossing the Bay of Biscay, and then travelling down the Portuguese coast, they made a refuelling stop at Cadiz in southern Spain. From there, they passed the Strait of Gibraltar to enter the Mediterranean Sea on the way to Italy, where all three were supposed to pick up their OTO-Melara 76mm guns and RGM-84A Harpoon anti-ship missiles. However, soon after leaving Cadiz and when reaching international waters, several officers led by Admiral Habibolahi seized control of *Tabarzin*. While the other two boats re-routed to Toulon, *Tabarzin* took a course for Morocco. When the government in Rabat refused to provide fuel, Habibolahi was left with no choice but to follow to Toulon, where he and his aides surrendered to the French. By then, Tehran dispatched a merchant, which collected and brought all five vessels to Iran. It was in this fashion that the IRIN received its last three warships of Western origin, and its final batch of Harpoon missiles.

Around the same time, Iran began acquiring four logistics vessels of the Delvar-class from Pakistan, of which two were equipped for transporting potable water, and the other two to transport stores,

IRIS *Neyzeh*, one of the last three Kaman-class missile boats delivered by France in August 1981. (CMN)

Captain Bahram Afzali, Commander of the Islamic Republic of Iran Navy from May 1980 until 24 April 1983. Officially at least, he was sentenced to death and executed for 'clandestine membership in the Tudeh Party' (Communist Party of Iran). (BahramAfzali.info)

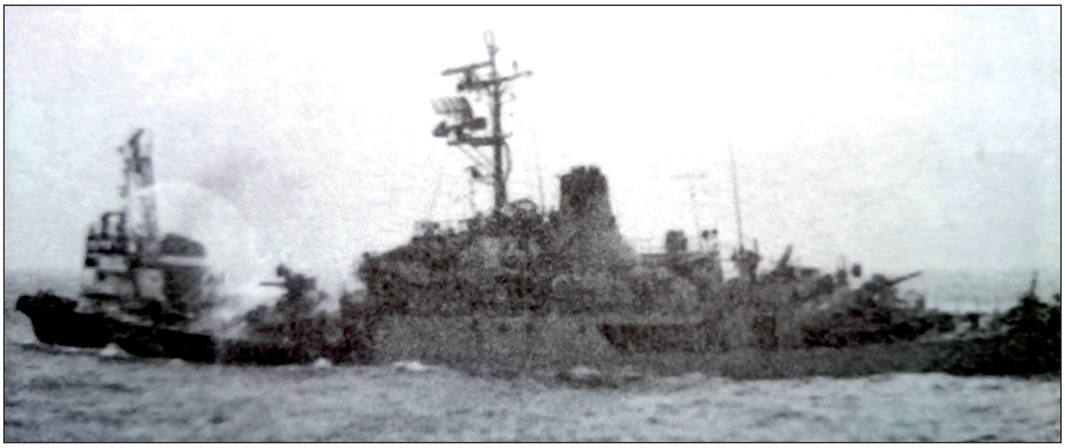
but all having a secondary minelaying capability. They were named *Souru*, *Silim*, *Sirjan* and *Dayyer*. Finally, Tehran also found a way to circumnavigate strict Japanese laws on exporting military equipment and acquired five landing ships built to commercial standards: although equipped for minelaying as their secondary purpose, the resulting Arya Rakhsh-class were officially described civilian roll-on-roll-off ships and delivered to Arya Shipping Lines under the names *Arya Akian*, *Arya Boum*, *Arya Dokht*, *Arya Rakhsh* and *Arya Sahand*. Of course, Tehran had its own ideas about their purpose and thus all five were eventually transferred to the IRIN as the Iran Ajr-class landing craft and minelayers, renamed as *Iran Ajr*, *Iran Asir*, *Iran Ghayder*, *Iran Bahr* and *Iran Badr*, respectively. However, when Tehran asked in London and Paris if it could contract a local shipbuilder to overhaul and modernise its Vosper-class frigates and Kaman-class missile boats, it was turned down. Thus, weapons-wise, the only reinforcement arrived in 1982, when Iran acquired between 250 and 300 moored contact mines with 500kg warheads, of North Korean origin. A year later, via Libya, the IRIN also purchased three Yugoslav copies of Russian contact mines, and then launched the development of their reverse-engineered versions.

Personnel-wise, in 1982 and 1983, the IRIN went through a turbulent period. A major purge in June 1982 saw 60 senior officers forced to resign their commissions. In February 1983, the navy's commander, Captain Bahram Afzali, as well as the commander of the ASH-3D squadron, Commander Mohammad Moussavi, were arrested for their involvement in the *Milanian* affair. On 30 April, upon the suggestion of the then President of the Islamic Republic of Iran, Seyyed Ali Khamenei, Captain Seyyed Esfandiar Hosseini was appointed in Afzali's place. Meanwhile, in March 1983, the IRIN was granted permission to start recruiting personnel again and opened a new naval academy in the port of Now Shahr, on the Caspian Sea.

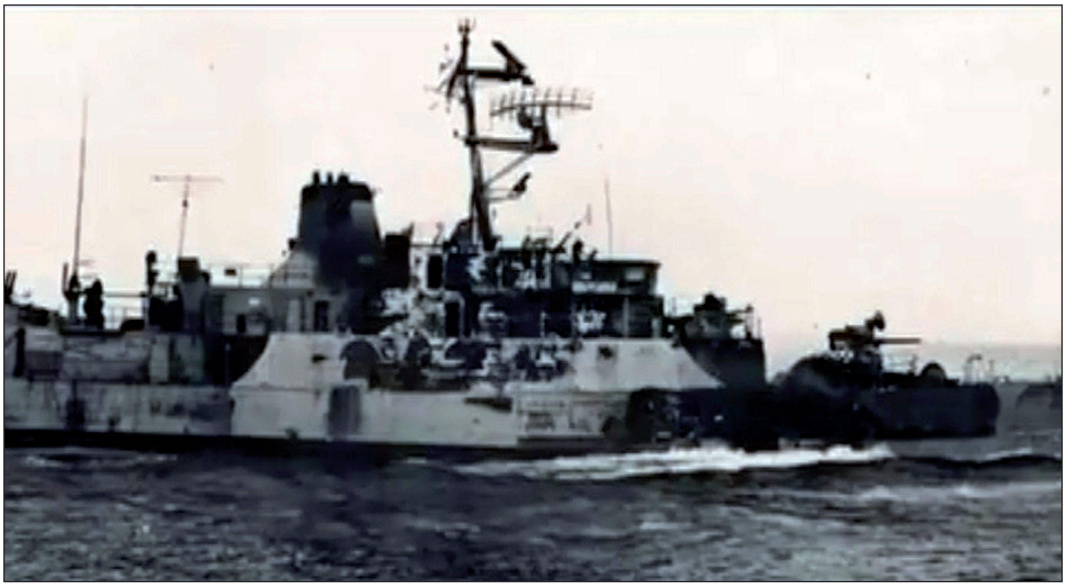
Loss of IRIS *Kahnamuie*[20]

That General Kabi was a different type of commander than Janabi before him, became clear on 2 October 1982. In an operation well-coordinated with Units 114 and 128, around 19.45hrs two Super Frelons flew from Ras al-Bisheh towards Mina al-Bakr, before continuing in a south-eastern direction until almost reaching the Iranian Nowruz offshore platform. Exploiting the fact that no F-14As were on CAP station (and other weaknesses in the Iranian detection systems at night and low altitude), they then slowed down and climbed to about 200 metres before powering-up their radars. When a single target was detected near Khark, each helicopter launched one Exocet missile.

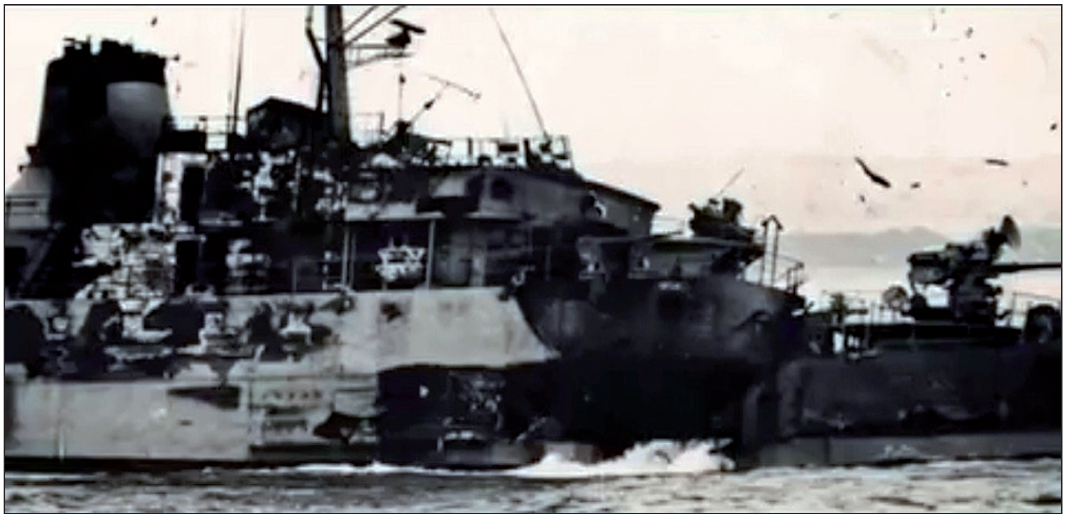
Commanded by Captain Shafighi, with 1st Lieutenant Sharif Farzad-Nia as deputy, the corvette IRIS *Kahnamuie* had been at sea since 29 September 1982: assigned to TF.643, her task was to patrol western approaches to Khark. Over the following two days, the ship reported heavy activity of enemy aircraft north of the Nowruz GOSP, eventually requesting support from F-14s. What was going on was that the IrAF attempted to – literally – 'carpet bomb the sea' in an attempt to damage one of the undersea pipelines connecting Genaveh with Khark. After



The burned-out hulk of IRIS *Kahnamuie* on the morning of 3 October 1981 while under tow towards Khark. Visible to the left and behind the bow of the corvette is one of the tugboats involved in efforts to bring the fires under control and then cool down the overheating hull of the vessel. (IRIN)



A starboard view of what was left of IRIS *Kahnamuie* after an Exocet attack on the evening of 2 October. Clearly visible is severe damage to the hull, stretching from forward of the front mount of the 76mm gun, all the way to the funnel. Barely visible in the background to the left is the coast of Khark Island. (IRIN)



A close-up view of the completely burned-out bridge of IRIS *Kahnamuie*. Notable in the lower right corner of this photograph is the extensive damage caused by the Exocet hit and resulting detonation of the ammunition magazine No.2, which broke the vessel's keel. (IRIN)

being reinforced by two Tomcats, *Kahnamuie* managed to drive away five formations of Iraqi fighter-bombers. The action continued during the morning of 1 October, by when IRIS *Kahnamuie* had fired over 3,000 76mm shells and was short of ammunition. Because of this, at least two formations of Su-22s managed to get through and damage the undersea pipeline.

Then, around 14.00hrs, the IrAF then refocused its attention on the lonesome Iranian corvette. The crew reported having repelled an air strike and shot down one of the Sukhois: however, as the ship stopped to inspect the crash site, around 11nm (20.3km) south-west of Khark at 14.30hrs, it suffered the failure of a power generator. Without electricity, *Kahnamuie* was almost defenceless. When requesting help from Bushehr, Shafighi received a reply that the spares were going be brought by helicopter on the following morning. Most likely, this was a fateful radio-transmission, because it was almost certainly intercepted by Iraqi Unit 114. Unsurprisingly, around 19.30hrs the IRIAF radar station in Bushehr radioed a warming about the approach of Iraqi Super Frelon helicopters. By then, the crew of *Kahnamuie* had dropped anchor and managed to power-up its surface search radar with the use of batteries. However, the ship's main guns were still out of action, and sailors manned rail-mounted 7.62mm and 12.7mm machine guns. Around 20.00hrs, the lookouts reported 'green light approaching': the machine gunners opened fire but the low-flying Exocet hit the ship on the port side, between magazines No. 2 and 3. The warhead detonation caused a major fire, which rapidly spread into the magazine. Severe detonations shook the vessel, eventually breaking its keel, setting the bridge afire and causing a breakdown in communications between the crew on the bow and the stern. Water began entering the hull through the hole caused by the hit: while this eventually extinguished some of the fires in the magazines, *Kahnamuie* began listing. With the main water pump and most of the firefighting equipment unusable due to the lack of electricity, by around 20.10hrs it was obvious the situation was out of control: Shafighi then gave the order to abandon ship.[21]

TF.421 received the information about *Kahnamuie*'s emergency around 20.15hrs: it reacted by ordering a maximum effort to save the damaged corvette, directing multiple tugboats and the missile boat IRIS *Gorz* (228) to the scene, while the corvette *Bayandor* (81; ex-F-25, ex-PF-103) was to sortie out of Bushehr in order to replace *Kahnamuie* on station off Khark.[22]

As *Gorz*, followed by a navy tugboat, a firefighting ship and a tugboat belonging to the Khark Island Oil Company approached the fiercely burning *Kahnamuie*, Shafighi transferred to the missile boat, from where he contacted TF.421, around 21.15hrs:

> From the command of *Kahnamuie* to TF.421: a missile hit the magazine No. 2 and created a 3-inch gap in the hull of the ship. Water is entering the hull and the ship is listing. The ammunition is detonating. There is nothing we can do at this stage. We do not have the water to extinguish the fire. The P250 water pump is not working and we cannot control the fire. If firefighting tugboats are dispatched from Khark and fight the fire from the outside, it is possible to save the ship.

Meanwhile, at 21.00hrs, FASHA warned TF.421 that another Iraqi air strike on Khark was imminent. Undeterred, the Iranians continued their efforts to save the stricken corvette: most of the crew was evacuated by life boats to Khark, but the biggest problem were continuous explosions in the ammunition magazines and the fact

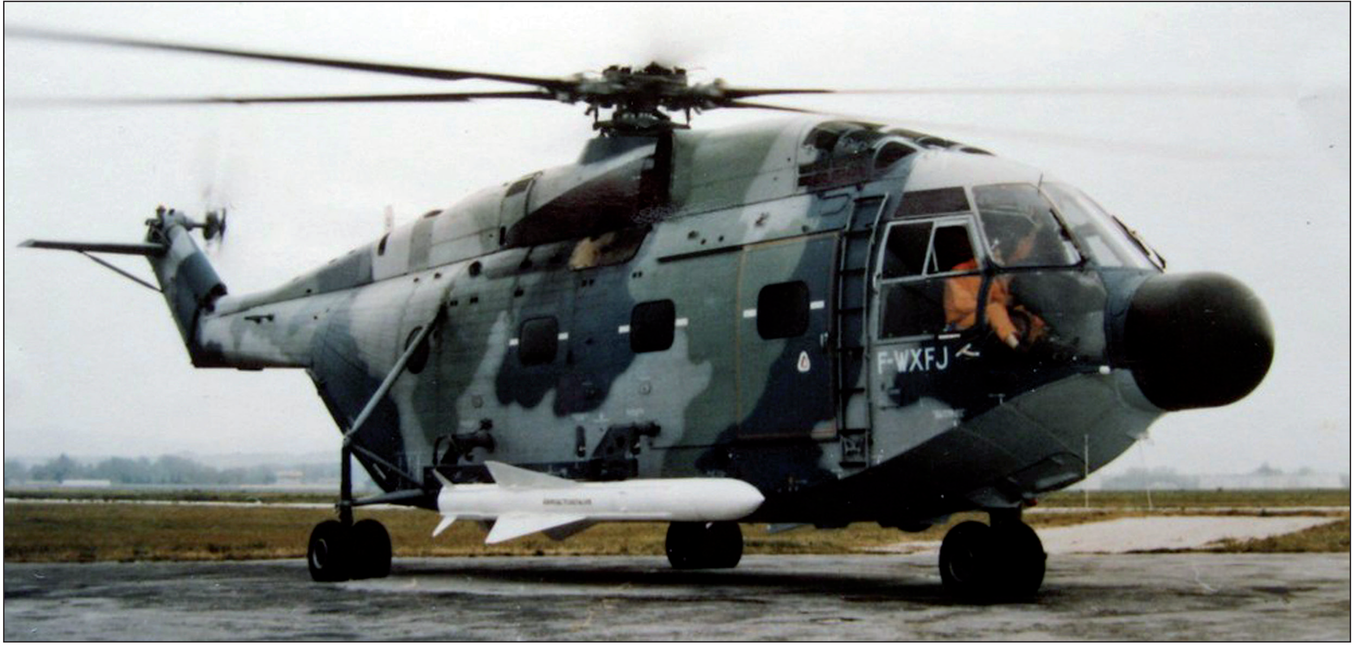
Iraqi Hornets and the Secret of their Success

Using the design of the little-known SNCASE SE.3200 Frelon ('Hornet') as a base, in the late 1950s Sud Aviation launched work on the SA.3210 Super Frelon. To provide enough power for what became the most powerful Western European helicopter, it had a six-bladed rotor designed with some help from Sikorsky, and three Turbomeca Turno IIIC turboshaft engines, and was first-flown on 7 December 1962. In July 1963, a modified prototype set the new absolute helicopter world speed record of 350.4km/h (217.7mph). Following minor redesigns of the fuselage and boom, it entered service with the French Naval Aviation as the SA.321G in October 1965, with anti-submarine warfare as its primary task, but was later deployed for transport duties, assault, and search and rescue purposes. Israel and South Africa were the first export customers, followed by the People's Republic of China, Libya and Iraq. The SA.321 had a maximum take-off weight of 13,000kg and could lift up to an 5,000kg external load.

The initial mission profile of No. 101 Squadron's SA.321GVs included a transit to the missile launch zone – either over Ras al-Bisheh or Bubiyan Island – at a speed of 195–250km/h (120–155mph) and an altitude of 60 metres (197ft) or less. The helicopter would then climb to an altitude of 150–200 metres (492–656ft) and acquire the target with its ORB.31 or ORB.32 Héraclés radar. This searched 180° in azimuth and 30° in elevation, and could track maritime targets with a radar cross section of 1,000 square metres over a range of 44nm (80km). Targeting data was automatically fed into the seeker head of the AM.39 Exocet. While early on, Iraqi Super Frelons usually carried just one AM.39 Exocet, through 1982–1983, they frequently deployed two. Upon missile launch, the helicopter would immediately drop down to low altitude and take an identical route back to base. A contemporary US intelligence report concluded: 'This tactic proved to be very successful in light of the number of ships damaged and the lack of losses to Iraqi aircraft. The missions could have been even more successful had more Exocets hit their targets and/or detonated.'[19]

Indeed, as far as is known, and despite multiple Iranian claims of shooting down Iraqi Super Frelons or their destruction by AGM-65A Maverick missiles during attacks on the two Iraqi platforms in the northern Persian Gulf, No. 101 Squadron did not suffer any combat losses during the war with Iran. Considering the well-known vulnerability of large and relatively slow helicopters to interceptors – especially such as the Grumman F-14A Tomcat, equipped with a powerful weapons system like the AWG-9 – this raises the question: 'why?'

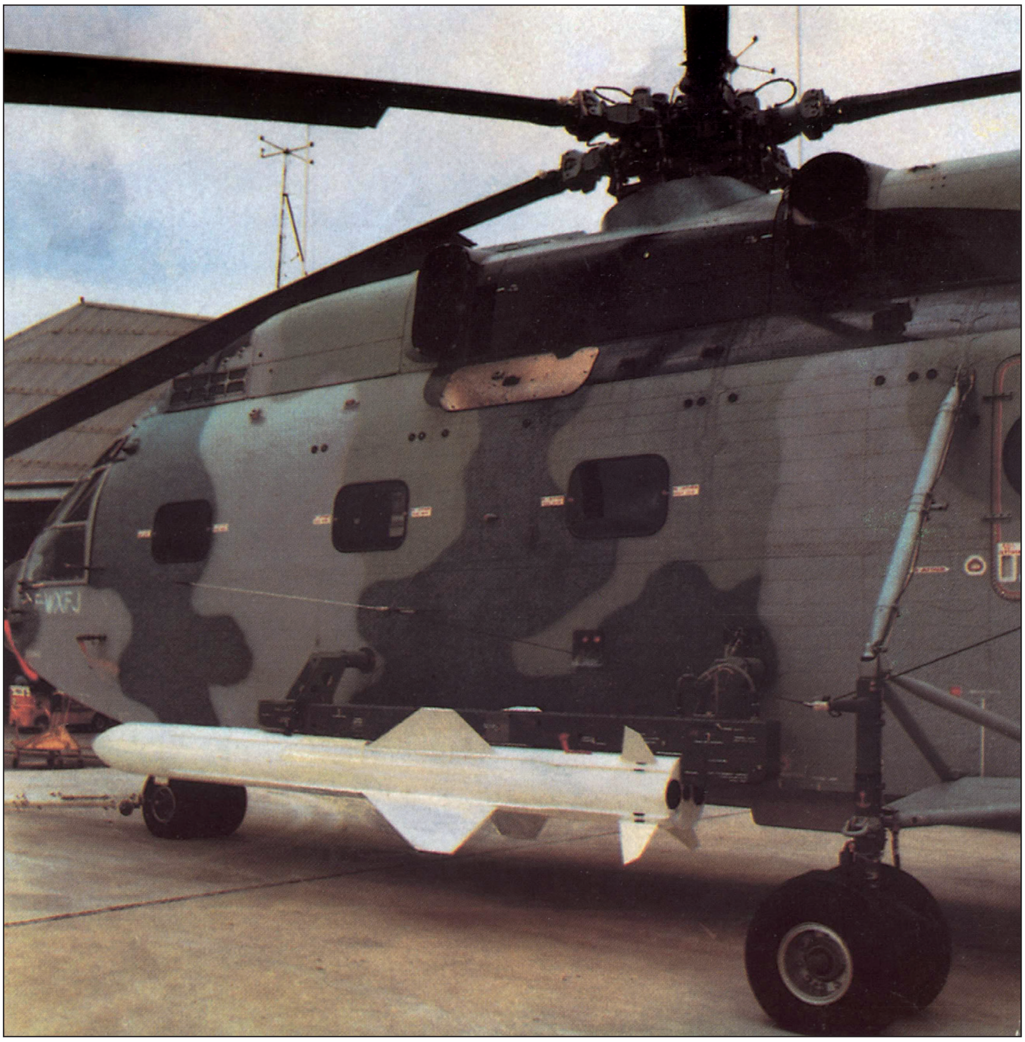
The answer lies in the construction and nature of radars like the AWG-9. When discussing that system's performance, it should be kept in mind that radar waves have to travel not only to the target, but also back to the antenna of the radar from which they were emitted. This means that for a target, for example, 50nm (92km) away, radar waves have to travel over a total of 100 nautical miles (185km). Unsurprisingly, the received signals are about 10,000 times weaker than those emitted by the radar. Another important fact is that the land and sea surface act as a



One of the ORB.31-equipped SA.321GVs made for Iraq, seen before delivery in full camouflage, but no national markings, and wearing the transfer registration F-WXFJ. Clearly visible is the AM.39 Exocet missile, with its pylon, attached to the side of the cabin. (Aérospatiale)

that the ship was at anchor. As the fires continued to spread, they threatened to reach ammunition magazine No. 4, while the fact that the ship was anchored meant that welding torches were necessary to cut the anchor chain and free the ship so it could be towed away.[23]

Although signalling to the Fleet Headquarters around 21.20hrs that there was no hope of saving *Kahnamuie*, TF.421 continued efforts to save the vessel. Around 03.30hrs, 1st Lieutenant Farzad-Nia and Petty Officer Sadif Momeni returned to the corvette using a small boat and managed to get on board: they passed a towing line to one of the tugboats. By 05.00hrs in the morning, a team of navy divers had arrived and then rain started to fall, which helped cool down the hull somewhat. The Iranians managed to cut off the anchor chain and then towed the burning vessel to a point near the northern tip of Khark, where it was anchored again. At that point in time, another team of IRIN officers arrived to inspect the ship: before long the conclusion was that the corvette was completely giant reflector of radar waves, and thus detecting aircraft or helicopters flying at very low altitude is hard and was even harder for systems developed in the 1960s deployed in combat during the 1980s. Even more so when these were installed on an interceptor underway at high altitude, as usual for AWG-9s installed on Iranian F-14As. Before the invention of such radars and fire-control systems like the AWG-9, searching for low-flying targets from above was largely pointless because the target's small radar reflection was lost against the overall reflection from the ground or the sea. The – for its time – very advanced microprocessor of the AWG-9 was capable of processing and managing the reflected signals in such a way that all the reflections from stationary or slow-moving objects (like cars) were eliminated. Thus, its cockpit displays were dominated by the colour black: apparently blank, they only showed targets that were moving and above ground level.


The other side of the same helicopter, with a close-up of the AM.39 (here a dummy missile) and its pylon. (Aérospatiale)

The AWG-9's processor had two weak spots: its performance was much better for targets moving over the sea surface than for targets moving over the ground. While Iranian F-14As regularly detected low-flying Iraqi aircraft underway over the northern Persian Gulf from well out to 100nm (185km), they rarely detected their enemies underway over the ground from more than 30–40nm (55–75km). Moreover, and to prevent the crew from being distracted – even confused – by the radar detecting cars or ships – the system had an adjustable doppler filter, which deleted all reflections from objects moving *below* specific speeds, too. For what speeds the filters of the Iranian AWG-9s were set remains unknown: whether on their own, or with the help of French advisors, through early 1983 the crews of No.101 Squadron learned that as long as they flew their Super Frelon at less than 80km/h over the land, they were unlikely to be detected by the AWG-9s of the Iranian F-14 Tomcats. Henceforth, instead of trying to reach their launch positions as fast as possible, they began approaching at very low speeds. Obviously, this required both nerves and courage, but ultimately: the concept was to prove itself beyond any doubt. Furthermore, the Iraqis learned to set the seeker-heads of their AM.39 to activate their radar – and thus start their terminal homing phase – much earlier than the French had trained them. In this fashion, they began avoiding cases where Iranian ships (especially IRIN warships) rendered their Exocets useless simply by turning into the threat: i.e. towards the approaching missile. The result of such a manoeuvre was that the targeted ship would reach a specific position before the missile's ADAC seeker head activated: the missile would pass by harmlessly, turn on only after passing the targeted ship and, because the AM.39 was not programmed to change course once it was launched, find no target whatsoever.

wrecked and there was no point in attempting to salvage and tow it to Bushehr: left in place, the once proud *Kahnamuie* sank in bad weather about a month later.

The Crisis of October 1982

Taking place almost exactly a year after the loss of three IRIAF F-14As, the loss of IRIS *Kahnamuie* – one of the most successful Iranian warships – caused a profound shock for TF.421 and the entire navy. This was even more so because it made the Iraqi superiority in regards of new technologies, attrition replacement, and acquisition of spare parts and armament crystal clear. Iran could not match this in any regards. The situation became so dramatic that when the news about this loss spread to Bushehr, the crews of numerous merchants and tankers flatly refused to take part in further caravans to BIK and Mahshahr. The representatives of the PMO tried their best, but to no avail: in the days immediately after, the sailors of only three vessels

– *Anis*, *Shalini* and *Eastern Guardian* – declared themselves ready to take the risk. The passage of the next caravan was thus delayed to 5 October, and even then: it included only five tankers. During this operation, the personnel of TF.421 were forced to observe that while other ships could accelerate up to 19 knots, and its crew announced their ship could maintain a speed of nine knots, the tanker *Aegis Scope* could barely maintain seven knots. Therefore, both TF.421 and the PMO in Bandar-e Khomeini and Bushehr were notified to refrain from letting this vessel join any of the caravans in the future. As time would show, this request was ignored.[24]

While the caravan of 5 October ended without any incidents, the one launched on 21 October was even luckier. The convoy from Bushehr to BIK included the vessels: *Iran Emamat*, *Iran Enghelab*, *Iran Jomhouri*, *Iran Shahdat*, *Iran Sokan*, *Iran Meezan*, *Osman Aksoy* and *Lenio*. At the same time, the IRIN also escorted a convoy of vessels returning to Bushehr, including *Anis*, *Shirvan* (tanker), *Tabriz* (tanker), *Shalin* and *Eastern Guardian*. Reportedly, two other merchants were involved as well, but their names are not mentioned in the available documentation. While this convoy was underway, a decoy barge tied to the hulk of the sunken tanker *Sambow Banner* was hit by at least one missile. This cut the cable, causing the barge to drift west: the last time it was seen, it was about 6nm (11.1km) east of Mina Khowr al-Amiyah.

Meanwhile, the headquarters of TF.421 did its best to reorganise protection with the available means. Correspondingly, on 17 October 1982, it established the Special Operations Unit to continue escort operations, along the following lines:

…

3) A team led by Lieutenant Akhgar of the IRIN is to construct decoy barges, capable of attracting enemy anti-ship missiles
4) Motor launches, boats, and boats equipped with 23mm cannons, and decoy barges, accompanied by the tugboats *Daleer* and *Lilian* are going to be stationed in the northern sector of Khowr al-Moussa. Every evening before sunset, they must deploy decoy barges near one of stranded vessels, in coordination with Lieutenant Akhgar
5) The HQ TF.421 has notified the commander of caravan operations that the next convoy is planned to leave BIK on 18 October 1982, as follows:
   A) Specific details of the mission are described in attachment
   B) Emphasis in the current tactics is on the moment of surprise. The ships are to move in small groups and in one direction only. At least one tugboat will always travel with every convoy, to serve for surveillance, search and rescue, firefighting, removal of disabled ships from the Khowr al-Moussa, and the transfer of personnel after the end of every mission.

…

C) …

D) Safety tips:

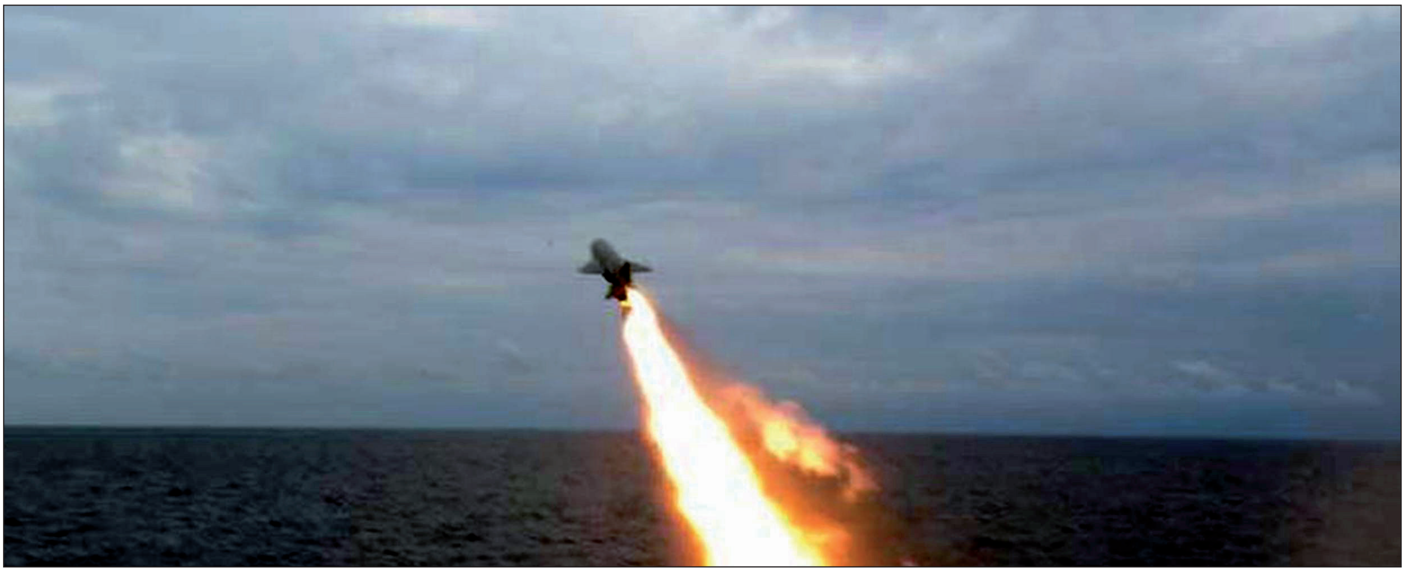
1) Involved personnel must make minimise the use of VHF devices, walkie-talkies, and other communications systems, and ensure safety through informing about caravan operations only those who need to know.
2) As soon as a PMO pilot is on board, he should take care all fuels, oils, and other flammable materials to be removed from the bridge or other parts of superstructure. These have the largest radar cross section and are most likely to attract radar-homing missiles. Lifeboats should be tested and ready to launch. The threatened side of every ship (left on northbound convoys and right on southbound convoys) should be drained of any kind of fuels and free from flammable materials. All windows must be reinforced with adhesive tape. All crewmembers must wear life jackets for the duration of the entire passage, and have their passports, money and other documentation on them. No crewmembers should be present in the living spaces or lower decks: they should be repositioned on the forecastle (forward deck) and then on the safe side of the vessel. The crews should prepare themselves packed food. Ship engineers must check the engines before the voyage, and afterwards limit their presence in machinery spaces to a bare minimum.
3) All the movement of ships and crewmembers in BIK, in or around the port facilities, should be carefully observed and minimised to the time of night. Any kind of movements outside the port should be undertaken only by night.
4) Ships with higher speeds should be positioned at the head of every caravan. The separation distance between ships bound for BIK should be at least one nautical mile. Between Khowr al-Moussa and Buoy 28, every ship must move at its highest possible speed. If there are two caravans passing at the same time from opposing sides, the rules of the sea traffic must be strictly observed: the ships should pass on the port side of each other. Ships are prohibited from turning on their radars by day or in good visibility (these are to be kept on standby), and all are to maintain absolute blackout. Navigational lights can be turned on only in low visibility. When underway in Khowr al-Moussa, ships must have their echo sounder devices on. If there is a need for ships to change course – for example to avoid an obstacle – they must coordinate with TF.421. Crews of all ships are advised to keep in mind the importance of the Khowr al-Moussa Waterway: keeping it clear and open is the paramount task. If a ship is hit by an enemy missile and there is a concern it might go out of control, it should be steered out of the canal and immediately anchored. Because the speed of tugboats is lower than that of merchants, they should be sent ahead of the caravan and wait in the area between Buoys 28 and 32.[25]

First Silkworms

In August 1982, the Iraqi Navy received its two batteries of Chinese-made HY-2 Silkworm anti-ship missiles. Both were deployed in the specially constructed (and heavily protected) base at Ras al-Bisheh: the southernmost point in Iraq. From there, their range enabled them to reach not only the Khowr al-Moussa, but also the area between Buoys No. 23 and 2 – the area known as the 'Danger Zone' to Iranian sailors. The HY-2 was a big weapon, with a length of 5.8m and launch weight of 2,580kg, of which 454kg was the hollow-charge high-explosive warhead. Depending on operational situation and the sea state, it could be programmed to fly at an altitude of 25 to 100 metres (82 to 328ft) and reach over a maximum range of 40km at a speed of Mach 0.95.

The caravan that had the bad luck of finding itself on the receiving end of the first Iraqi combat deployment of the Silkworm was initiated on 4 November 1982 and was conducted contrary to the instructions above, issued by TF.421. The convoy to BIK included the ships *Iran Nabovat*, *Iran Salam*, *Iran Borhan*, *Iran Entekhab*, *Iran Azadi*, *Iran Hojjat*, *Amin*, *Adib*, *Al Basser*, *Mokran* (tanker), *Maroun* (tanker), *Scape Mount* (tanker), and *Stolt Sydness* (tanker).

A much smaller caravan – including only three merchants and two tankers – was scheduled to travel south at the same time. Certainly enough, both the IRIN and IRIAF went to great lengths



The launch of a P-15 missile, as seen from the bridge of the ship that fired it. Notable is the powerful exhausts from the booster used to propel the missile to its cruise speed. The HY-2 looked almost exactly like the P-15, and was launched in similar fashion, but from ground-based launchers. (Indian Navy)

RESCUE
FOR EMERGENCY USE ONLY
1.PUSH BUTTON TO OPEN DOOR
2.SQUEEZE "T" HANDLE AND PULL
TO JETTISON CANOPY
IRIAF

Captain Fazlullah Javid-Nia and 1st Lieutenant Hosseini in the cockpit of an F-14A. Like most F-14 crews involved in providing top cover for the IRIN convoy operations in 1981–1984, they were assigned to TFB.7, whose Deputy Operations was Colonel Shahram Rostami. (Tom Cooper Collection)

to safeguard the passage of all the involved vessels: P-3F Orion maritime patrol aircraft of the navy flew two reconnaissance sorties along its route, and the air force even sent one of its Dassault Falcon business jets to fly low altitude reconnaissance of the entire route from the Strait of Hormuz up to Genaveh. TF.421 also undertook other security measures. Nevertheless, during the evening of 4 November 1982, Iranian COMINT and SIGINT detected vigorous activity of Iraqi interceptors and Super Frelon helicopters over the Faw Peninsula, making it clear that the enemy was aware of Iranian intensions. Therefore, the decision was taken to delay the start of the operation to 06.00hrs on the morning of 5 November.

Initially, everything was developing according to plan, until around 12.00hrs, when a pair of Iraqi interceptors appeared over al-Faw. Ten minutes later, these were engaged by two F-14As and the crew including Captain Fazlullah Javid-Nia and 1st Lieutenant Hosseini, engaged a MiG-23 with an AIM-54A Phoenix air-to-air missile. At 12.15hrs, the Iraqi jet received a direct hit and its wreckage crashed in the Busif area, south-east of al-Faw, near the southern bank of the Shatt al-Arab: most likely, the jet was a MiG-23MF from No. 67 Squadron. The pilot, Major Mossadegh Rayes al-Mamouri, ejected but was badly wounded and, although recovered by the Iraqis, never flew again.

Just a minute later, an entirely unknown type of missile approached the caravan from the west and hit the merchant *Iran Hojjat*, which was carrying a military cargo. The powerful detonation of the weapon killed one sailor, while two others were missing. IRINA helicopters then evacuated 18 other crewmembers. The SAR (search and rescue) operation for *Iran Hojjat* was still going on when, at 12.41hrs, another missile of the same type blew up the tugboat *Daleer*, which came to the assistance of the burning merchant: this time, seven crewmembers were killed on the spot, three were subsequently declared missing, while all the survivors were badly wounded.

With the Iranians finding no trace of related enemy aircraft or helicopter activity, the conclusion was clear: the missiles deployed against them on 5 November 1982 must have been launched from the land, probably from the Ras al-Bisheh area, where the Iraqis had recently been carrying out some kind of construction work. This was how the IRIN figured out the presence of two Iraqi HY-2 Silkworm sites. Of course, operations Crocodile and Torpedo-2 had to be continued, regardless of the new threat.

Attack on IRIS *Shariati*

According to Iraqi and Russian reports, late on 21 November, three Iraqi Osas set off from Umm Qasr in a southern direction, with Janabi's order to intercept one of the tankers approaching or departing from Khark Island, before racing back to safety. In the early hours of the following day, they turned east, accelerated and then launched six P-15 Termit anti-ship missiles – but at the Bushehr anchorage, south of Khark. Their crews subsequently claimed to have hit five vessels, including what they described as 'a large yacht'. According to US intelligence reports, one missile hit IRIS *Shariati* – the former cruise liner *Raffaello*, renamed in 1979 and previously used as a barracks ship – while four other vessels were damaged.[26]

According to IRIN documentation, the Iraqis attacked around 01.00hrs in the morning. Their first missile struck the tanker *Shirvan*: 33 crewmembers were recovered (including one wounded Iranian), while three were missing (including one West German citizen). The next missile hit the Indian merchant *Archena*, loaded with phosphates, which was discharging her load with the use of barges while still at the anchorage. Two crew were seriously wounded, but 53 others rescued. Both vessels were eventually repaired. IRIS *Shariati* which was now used as a missile decoy and thus completely empty at the time of attack, positioned 40km south-east of Khark and 17km west of the port of Bushehr, was hit by two missiles: the resulting conflagration caused it to sink a few days later and it thus became the largest vessel (45,933 gross registered tons; grt) sunk by Soviet-designed and manufactured missiles in this conflict. All three Iraqi Osas withdrew towards the Kuwaiti coast, and returned safely to Umm Qasr, at 08.00hrs of 22 November 1982.[27]

Chaos in the Dark

After the shock and surprise caused by the first Iraqi strike on the Bushehr anchorage, it took the IRIN nearly a week to organise the next convoy. For 27 November 1982, it scheduled the passage of the following ships to BIK: *Iran Nabovat*, *Adib*, *Anis, Aegis Sonic*, *Al Baseer*, *Eastern Guardian*, *Shalini*, *Tabriz* (tanker), *Mokran* (tanker), *Maroun* (tanker) and *Solt Sydnees*.

As now usual, the Iraqis got wind of the related preparations and Iranian COMINT and SIGINT tracked the presence of Super Frelons over the Faw Peninsula for the whole evening of 26 November. Nevertheless, TF.421 ordered the caravan to move out. In order to provide cover for it, at 04.30hrs on 27 November, the IRIAF radar stations at Sar Bandar and Bushehr requested the scrambling of two F-4Es from TFB.6. At 04.45hrs, the lead Phantom (callsign Oghab-52), then claimed to have shot down an Iraqi helicopter. However, less than an hour later, at 05.30hrs, one of the Super Frelons launched an Exocet. To the Iranian's luck, this missed: eventually, it turned out that the Phantom crew had actually fired a missile at the Ardeshir offshore platform. Amid the chaos, the convoy reached BIK and Mahshahr without further incident, as did the southbound caravan.

Before launching the next convoy on 30 November 1982, TF.421 organised an operation to remove the wreckage and burned-out hulks of several ships from the danger zone. Undertaken by several Iranian salvage vessels, tugboats, and several helicopters, and under the watchful eye of two pairs of F-14A Tomcats from TFB.7, the operation concluded successfully and without incident. Meanwhile, IRIN personnel took care to adapt their tactics to better exploit whatever cover was offered by the regional geography. The caravan that sailed on 9 December 1982 was thus routed to move from the Bushehr anchorage towards the eastern side of Khark and Kharko before proceeding north. That said, very few other details were recorded in Iranian documentation except for the list of involved merchants. Those underway from Bushehr to BIK and Mahshahr were *Iran Borhan*, *Iran Salam*, *Amin*, and *Scape Mount* (tanker). The empty vessels returning to Bushehr were *Iran Abad*, *Iran Ekram*, *Iran Jenan*, *Iran Esteghlal*, *Al Tamnar*, *Eastern Legend*, and *Maroun* (tanker). The outbound convoy was detected by the Iraqi TRS.3004 radar installed at Mina Khowr al-Amiyah, and at 14.10 and 15.06hrs, the launch of two Exocets was detected from the Qeshla area, near Ras an-Nakhl where an IRINA helicopter also reported the sighting of a Super Frelon. Both AM.39s missed their targets and all the vessels from both caravans reached their destinations safely.[28] The convoy commander subsequently described this attack as follows:

> At 14.10hrs, a white missile with four wings at the rear and a rounded front tip was observed while approaching the convoy at

A memory of better times: *Raffaello* while it was still in service in its original role as a luxury liner. In service with the IRIN, it was re-designed *Shariati* and used first as a barracks ship and then a missile decoy. (IRIN)

A still from a video showing an F-4E armed with AIM-9J and AIM-7 missiles about to commence in-flight refuelling from a Boeing 707-3J9C tanker of the IRIAF. The two AIM-7E2 Sparrows installed in the forward missile bays can be made out at the bottom of the fuselage underneath the cockpit. (Tom Cooper Collection)

> a speed of 400–500 knots, along the course of 085° and moving in direction of 265°. The gun crew was able to monitor its flight for about 40 seconds, and people on the roofs of houses in Abadan for at least one minute. On the same date, at 15.06hrs, the second missile approached from the same direction. The approximate flight altitude of each missile was 180 to 250 feet. Subsequently, ranger lookouts saw a helicopter landing at Ras al-Bisheh.[29]

Bad Weather

The second half of December 1982 saw Iran being hit by a period of unusually bad weather, with blizzards, snow and bitter cold. As a result, both the runways at TFB.7 and TFB.8 were frozen, effectively grounding the IRIAF's F-14 fleet for days. In turn, this meant that when the IRIN set up the next caravan to BIK and Mahshahr on 18 December 1982, it could only count on the support of F-4Es from TFB.6. Both the outbound and inbound convoys were kept small. The one underway from Bushehr to BIK included the vessels *Iran Enghelab*, *Jami*, *Iran Adalat*, *Tabriz* (tanker), and *Scape Mount* (tanker). The caravan with empty vessels returning in ballast to Bushehr included just three ships: *Iran Entekhab*, *Iran Azadi*, and *Maroun* (tanker).

The operation received not only the usual protection from warships of the IRIN but the 22nd Artillery Group of the Islamic Republic of Iran Army was to provide support with long-range artillery action against the two HY-2 Silkworm sites at Ras al-Bisheh. However, the unit reported having run out of ammunition in an earlier action and was not replenished in time. Thus, as the two caravans were passing each other between Buoys No. 23 and No. 2, around 12.26hrs, they came under sustained attacks from a total of 10 HY-2s.

At 12.34, the first missile hit the tanker *Scape Mount* loaded with kerosene; at 12.40, the second hit the water near the Panamanian freighter *Success* (the same ship damaged by an Exocet in January of the same year), and a minute later the third missile hit *Jami*. *Scape Mount* lost not only its skipper and one of its sailors, but quickly caught fire, leaving the missile boat *Zoubin* (P 222) and the escorting tugboats and helicopters little option but to evacuate the survivors of the crew of 40, and three Iranian nationals (amongst them PMO pilot Captain Mone Maturian). What was left of the fiercely burning hulk was then pushed out of the Khowr al-Moussa and left to sink. The fate of *Jami* was no better: five of her crew were killed by the missile hit, and the escorting vessels had their hands full with searching for and recovering the 24 surviving Indian crew and two Iranian nationals, as well as a PMO pilot and two IRIN officers.

The convoy commander recalled:

> It was the same as during the previous convoy. The first missile was launched at 12.23 and the second at 12.40. The third and fourth were moving along a course of 300°, from Ras al-Bisheh, at an altitude of 180 to 250 feet, along the coast from Abadan Island. The sound of a helicopter was reported from this area: this obviously launched the fourth missile. Our troops at the southern tip of the Abadan Island opened fire with two 23mm guns, one

Originally christened *Toscana*, the tanker later renamed *Scape Mount* saw quite intensive involvement in Iranian caravan operations of 1981 and 1982. The vessel's career ended when it was hit by an HY-2 on 18 December 1982: the resulting fire caused a massive conflagration that demolished much of the ship. The hulk was towed out of the way and left to sink in shallow water. (PMO)

> 12.7mm machine gun, and several G-3 assault rifles. They might have disrupted the work of the enemy crew, because the Iraqis responded by firing several mortars, and their helicopter crew seems to have launched the missile as soon as it came under fire.[30]

In retaliation for this attack, later the same day three F-4Es from TFB.6 attacked Mina Khowr al-Amiyah and Mina al-Bakr with AGM-65A Maverick missiles. The results appear to have been meagre: it is certain that the Iraqi TRS.3004 Sea Tiger radar installed there remained operational.[31]

PMO on Strike

At 06.00hrs of 2 January 1983, a caravan of empty vessels from BIK to Bushehr raised anchors and began moving south. Included were vessels *Iran Akram*, *Iran Abad*, *Iran Esteghlal*, *Iran Jenan*, *Eastern Legend* and *Al Tamnar*. Slightly later, at 08.30hrs, the caravan for BIK and Mahshahr moved out of the Bushehr anchorage. Included were the ships *Iran Siyam*, *Sarital*, *Minab* (tanker), *Maroun* (tanker), *Chemical Sol*, *Orient Horizon* and *Eastern Hunter*.

Problems began at 07.40hrs, when *Iran Ekram* ran aground near Buoy No. 4. The caravan commander, who travelled aboard *Iran Abad*, transferred to this ship and then, with the help of the PMO tugboats *Poolad* and *Kaveh* managed to refloat *Iran Ekram*. However, by then the ship was already lagging well behind and was ordered back to BIK. Next, *Eastern Legend* fell behind the caravan due to its low speed, and at 11.10hrs was ordered back to the port in the north.

Further north, the action continued. Around noon, as the two columns were passing each other while underway through the danger zone, they came under attack from a total of nine missiles. Most of the launches were observed and reported by a group of army rangers deployed on Abadan Island and along the Ghasemieh River, but this still left very little time to react. At 12.10hrs, one Exocet hit *Eastern Hunter* carrying a load of urea: four crewmembers and the PMO pilot Captain Khalil Nejad were missing, while 36 other crewmembers were evacuated safely. At 12.25hrs, another Exocet slammed into *Orient Horizon*, but the ship continued the voyage south and reached the Bushehr anchorage around 22.45hrs. All other vessels managed to reach their destinations without further incident, but the tugboat *Poolad* lost one crewmember who, scared by a narrow miss of a missile, threw himself into the water and was killed by the propeller.

Captain Abdol Hamid Khalil Nejad, who went missing (and was subsequently declared killed), while guiding the freighter *Eastern Hunter* with the southbound caravan, out of the Khowr al-Moussa towards Bushehr on 2 January 1983. (PMO)

These experiences had two major repercussions. On request from TF.421, the air force deployed two of its Oerlikon 35mm anti-aircraft guns and a Fledermaus fire-control radar on Abadan Island near the village of Qafas, to issue early warnings of Super Frelons and the launch of HY-2s, and help to track them. At least as important was the fact that in the light of the death of one of its most experienced pilots, Captain Nejad, the PMO announced its refusal to continue taking part in caravan operations. The protest resulted in a meeting between PMO representatives and the leadership of the IRIN, held on 9 January 1983, but this only resulted in the director of the Ports and Maritime Organisation ordering the officials in BIK to refrain from sending pilots to any vessels involved in convoy operations until further notice.[32]

In turn, TF.421 then sent a letter to the HQ IRIN with the following content:

> 1) Due to the fact that this Task Force is responsible for escorting the caravans of commercial ships and oil tankers, but the PMO is refusing cooperation, presently it is impossible to perform the assigned tasks….
> 2) The lack of experience in piloting big commercial vessels in the Khowr al-Moussa is preventing navy officers from assuming

HÖEGH DRAKE

On 2 January 1983, freighter *Eastern Hunter* was hit by an Exocet that killed at least four crewmembers and PMO pilot Khalil Nejad. The ship was underway with a northbound convoy, carrying a load of urea. (PMO)

> responsibility for this task. Should the navy officers who lack experience try to take over the task of pilotage of merchants and tankers instead of PMO officers, it must be expected that due to their lack of experience and familiarity with the local circumstances, there are going to be accidents and the canal will be blocked.
>
> 3) In order to solve this problem, we recommend a meeting between representatives of the pilots, representatives of TF.421, and officials from both the PMO and IRIN, other interested organisations, and the JCS, to examine existing problems and provide a suitable and feasible solution. …'[33]

Not leaving anything untried, the command of the IRIN requested help from pilots working for oil companies, several of whom were present in BIK and Mahshahr.[34]

IRIN Statistics for 1981, 1982 and Early 1983

On 8 January 1983, and at request of the HQ IRIN, TF.421 prepared statistics for the convoy operations conducted up to that point in time. The report in question pointed out the following:

> **Caravans from Bushehr to BIK for the period 21 March 1981 to 20 March 1982:**
>
> - Total number of commercial cargo ships escorted: 291
> - Total number of tankers escorted: 40
> - Damaged ships: 3
> - Sunk ships: 2
> - Number of injured IRIN crewmen: 3
> - Number of killed IRIN crewmen: 0
>
> **Caravans from BIK to Bushehr for the period 21 March 1981 to 20 March 1982:**
>
> - Total number of commercial cargo ships escorted: 266
> - Total number of tankers escorted: 43
> - Damaged ships: 3
> - Sunk ships: 2
> - Number of injured IRIN crewmen: 0
> - Number of killed IRIN crewmen: 7
>
> **Caravans from Bushehr to BIK for the period 21 March 1982 to 8 January 1983:**
>
> - Total number of commercial cargo ships escorted: 105
> - Total number of tankers escorted: 28
> - Damaged ships: 5
> - Sunk ships: 5
> - Number of injured IRIN crewmen: 22
> - Number of killed IRIN crewmen: 24
>
> **Caravans from BIK to Bushehr in period 21 March 1982 to 8 January 1983:**
>
> - Total number of commercial cargo ships escorted: 100
> - Total number of tankers escorted: 28
> - Damaged ships: 3
> - Sunk ships: 0
> - Number of injured IRIN crewmen: 4
> - Number of killed IRIN crewmen: 1
>
> Two additional ships were damaged while in the Bushehr anchorage:
>
> - Tanker Shirvan (one person wounded and three killed)
> - Commercial cargo ship Archana (two people wounded)[35]

In turn, in a letter dated 14 January 1983, the Ministry of Roads and Transportation announced to the IRIN:

> In the Year 1361, we are planning to unload a total of 4,090,556 tons at the port of Bandar-e Imam Khomeini. In the first ten months of this year, we have unloaded only 1,789,689 tons – or just 44% of the plan. The problem is caused by poor performance of earlier convoys, resulting in no fewer than 74 ships waiting for their turn to travel north and unload....'[36]

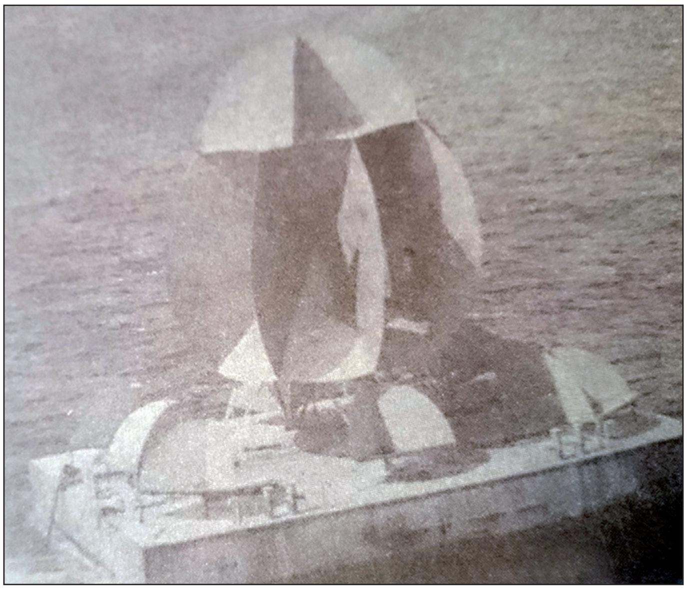
In other words, everybody – not only the PMO, but also the government in Tehran – was expecting the IRIN to significantly improve its performance, and bring many more ships to BIK and Mahshahr safely.

Cobras and Missile Decoys

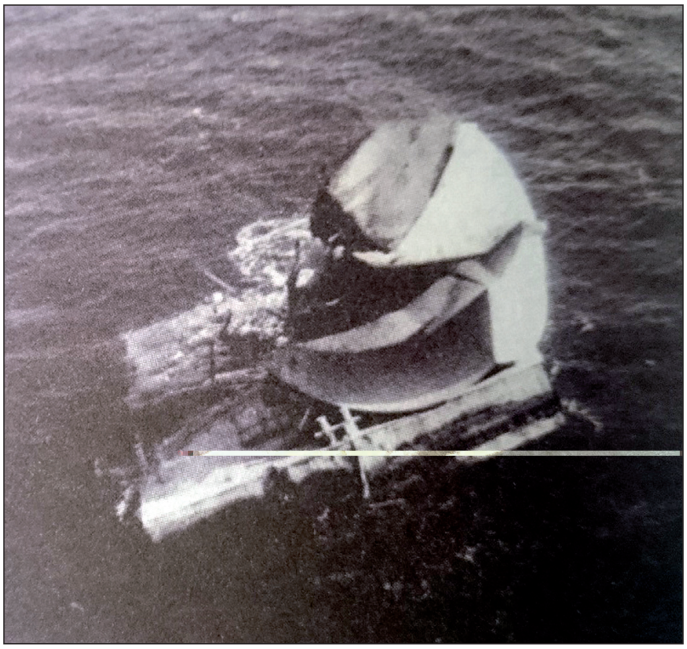
Eventually, the dispute with the PMO was solved through negotiations and TF.421 promising to take all possible steps to improve the situation and reduce losses. Amongst the solutions aimed to improve the situation were two particularly notable ideas. The first was based on positive experience from earlier operations, when the deployment of AH-1J Cobra attack helicopters proved highly effective in keeping Iraqi Super Frelons at bay. Therefore, the IRIN agreed with the IRIAA to keep a group of two Bell 206 scout helicopters and four Cobras based in the Tengistan area, whenever it planned to conduct the next convoy operation.[37]

Moreover, based on the conclusion that the sole missile decoy constructed and deployed south of the Khowr al-Moussa so far was known to have attracted the attention of at least one Exocet, enabling all vessels of the attacked caravan to complete their voyage undamaged, the decision was taken to launch series production of fake targets and deploy them at various spots along the entire danger zone, from Buoy No. 1 in the northern direction, even well inside the Khowr al-Moussa. While the IRIN scrambled to put all the measures in place, the next caravan was initiated on 15 January 1983, well before everything necessary was available. However, it included only ships leaving BIK and Mahshahr: *Iran Adalat*, *Iran Ekram*, *Eastern Legend*, *Minab* (tanker), *Maroun* (tanker), *Tabriz* (tanker), and *Chemical Sol*. Although all vessels were empty, the Iraqis attacked again and again, launching multiple Exocets and HY-2s. Missiles inbound were reported at 08.00hrs, 10.00hrs, 11.40hrs, and 11.50hrs, but all missed – probably because of the bad weather and resulting heavy seas. At 13.00hrs, three fighter-bombers of the IrAF appeared over the northern Persian Gulf, but as soon as a pair of F-14s moved in their direction all three withdrew towards the north. The operation thus ended around 16.00hrs, with all vessels safely reaching their destination.

The ninth convoy of the Iranian calendar year 1361 was the first organised following the new tactics developed by the staff of TF.421 in reaction to the showdown with the PMO, and the first supported by a significant number of missile decoys. It was codenamed Shiva and conducted within the frame of Operation Torpedo-2, but included only four vessels underway in the northern direction, and three in the southern. The operation began at 06.00hrs on 29 January 1983. At 08.35hrs, one of the merchants underway in the northbound caravan suddenly and without any explanation veered off and returned to the port of Bushehr, which it reached around 09.15hrs. Slightly over an hour later, a formation of four Su-22s from No. 109 Squadron, escorted by two MiG-23MFs from



One of the early missile decoys designed by the HQ of 3rd Maritime District. This was based on the principle of 'corner deflectors', and positioned on a large, box-like buoy, which was anchored to the seabed under the surface. (IRIN)



The same missile decoy seen after serving its purpose – after receiving a direct hit from an AM.39 Exocet missile. The success of these simple and cheap devices was such that it quickly emboldened the IRIN – and then the IRGC – into their mass production. (IRIN)

No. 67 Squadron approached from the north. However, they were intercepted by two F-14s, lost one jet and beat a hasty retreat. Moreover, at 10.50hrs, four F-4Es from TFB.6, supported by two F-14As from TFB.7, attacked Mina Khowr al-Amiyah with AGM-65A Maverick missiles. Escorting Tomcats then claimed another MiG-23 as shot down. The action of 29 January 1983 was concluded with the Iraqis launching two HY-2s: one at 12.05 and the other at 12.30hrs. Fired without proper radar support both missed and crashed harmlessly into the water. Eventually, the Iranian convoy operation was concluded at 14.00hrs, with all ships reaching their destination without disruption.

At 06.00hrs of 9 February 1983, a caravan codenamed Operation Samander moved out of the Bushehr anchorage, including 11 merchants and tankers: *Iran Jomhouri*, *Iran Eslami*, *Iran Shahdadat*, *Iran Azadi*, *Iran Meezan*, *Iran Jehad*, *Iran Kalam*, *Iran Vojdan*, *Anis*, *Tabriz* (tanker), and *Vares* (tanker). At the same time, a southbound convoy began its trip from the port of Mahshahr. The Iraqis detected the IRIN-escorted ships about five hours later and multiple missiles were reported as approaching the last ship of the northbound caravan. The commander of PBR Mk.III hull number 259, recalled what happened next as follows: 'At 11.05, the first Iraqi missile hit the water near the previously damaged ship *Success* and exploded. At 11.20, the second missile hit a missile decoy and exploded on contact. At 11.30, the third missile hit the wreckage of the tanker *Scape Mount*.'[38] Obviously, the new tactics – including not only the deployment of missile decoys, but also moving the caravan close to the wreckage of ships written off during earlier operations – was proving successful.

Exhaustion

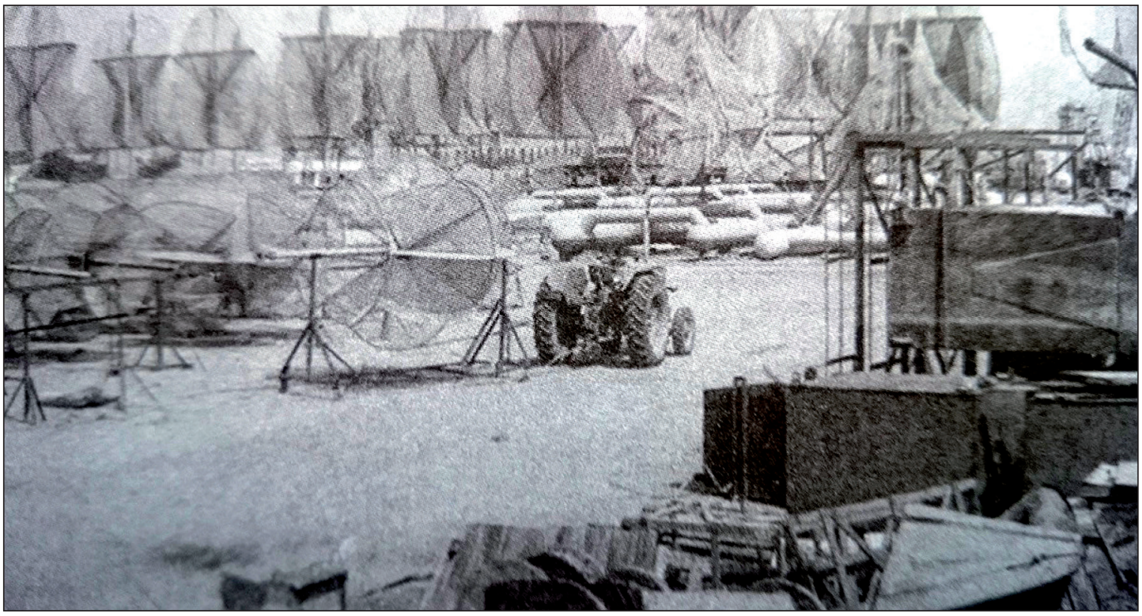
Having failed to block the flow of supplies to BIK and Mahshahr, in February 1983 the Iraqis decided to attempt something new: instead of interdicting Iranian convoys, they attacked the oil platforms exploiting the crude exported to pay for Iranian imports. Positioned deep in the central northern Persian Gulf, these were only lightly protected, and thus the IrAF risked very little when trying to hit them. The operation in question was launched as soon as No. 109 Squadron – which had meanwhile lost nearly all of its complement of 18 Su-22s – completed conversion to recently delivered Su-22M-3s. In similar fashion, the IrAF re-equipped No. 39 Squadron with MiG-23MFs, and in turn handed over its surviving MiG-23MS' to No. 59 Squadron, which acted as an operational conversion unit for this type. Indeed, supported by MiG-23MFs, on 2 March 1983, No. 109 Squadron deployed its new mounts in an air strike on the Nowruz platform. Several bombs hit their mark, causing an oil spill, but the installation remained operational.[40]

Interestingly, the IRINA exploited the lull in fighting for similar purposes: in early 1983, it equipped two of its ASH-3D Sea Kings (serials 8-2303 and 8-2310) with launch rails for AGM-65A Maverick electro-optically guided missiles. With both of these ready for action, immediately after the Iraqi air strike on Nowruz, it sent the two Sea Kings to attack Mina Khowr al-Amiyah. As time would show, this and the earlier IRIAF attacks on Mina Khowr al-Amiyah (on 29 January 1983), proved highly successful. They not only knocked it out, but completely destroyed the TRS.3004 radar and, for several weeks after, FASHA's means of electronic intelligence gathering – including *Khoofash* aircraft, and ground stations in BIK, Mahshahr, Genaveh and Bushehr area – recorded no radar emissions from the area, whatsoever. It was only in April 1983 that it transpired that the Iraqis had replaced the destroyed TRS.3004 radar at Mina Khowr al-Amiyah through installing a Thomson-CSF Tiger-G radar on Mina al-Bakr. Nevertheless – and surprisingly enough – the Iranians were slow in exploiting this opportunity. Indeed, the eleventh convoy operation in the Persian calendar year 1361 was launched only on 21 February 1983. Codenamed Shabahang, this included a northbound convoy of six merchants and a southbound convoy of five vessels. Because the Iraqis took time to replace the destroyed TFS.3004 radar, their reaction was slow and fruitless: only two HY-2s were fired and both crashed harmlessly into the sea.

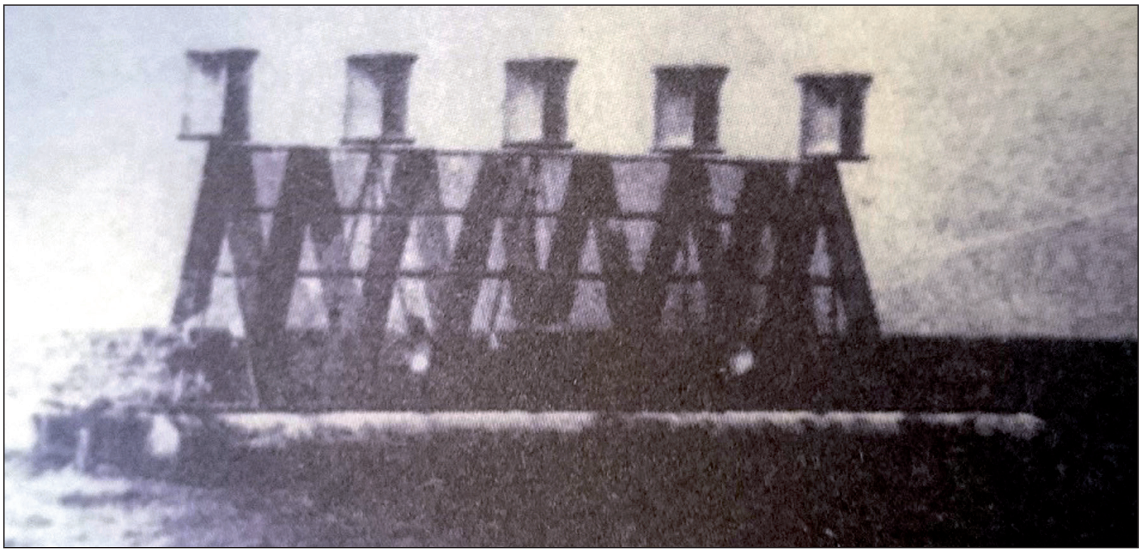
To a certain degree this can be explained with the IRIN being preoccupied with combating the effects of the Iraqi strikes on Iranian offshore platforms. For example, on 20 and 21 February, IRIAF and IRIN escorted the vessels *Installer Pacific* and *Ocean Driver II* to Nowruz, where they helped with extinguishing fires and initiating repairs. Moreover, another series of Iraqi air strikes with anti-radiation missiles caused such damage to the IRIAF radar stations

Fishing Exocets

The Iraqis convinced themselves that the manufacture of the missile decoys was undertaken by a team of 'British advisors working for the IRIN,' indeed, the crew of the British salvage vessels *Strance II* and *Seaboard*, both of which had Anglo-German crews. The task of manufacturing missile decoys for the Iranian navy was actually initially assumed by the 3rd Naval District (HQ in BIK), in cooperation with the 1st Naval District because necessary material was not available on the spot.[39] Through 1983, the related work was then expanded to a degree where most of the decoys were manufactured by the Construction Task Force (Jahad-e Sazandegi) of the IRGC's al-Hadi Engineering Brigade. Most of the resulting decoys consisted of cylindrical metal buoys, usually between 2 and 2.5 metres wide. Each had a 4-metre tall mast: some supporting big metal plates, but mostly encased in metal mesh. By the end of 1983, at least one such decoy was deployed every two miles along the convoy route through the danger zone. All were anchored, and tugboats of the IRIN and PMO had to shift their position every night. By 1984, further south, even bigger decoys – including one a whole 17 metres in size – were deployed. Then enough decoys became available to spread their use to the Khark area: by the end of that year every tanker loading there had one such decoy deployed north-west of it. As will be described in later volumes, the Iranians further intensified the use of missile decoys from 1986 onwards.



Construction of missile decoys for the IRIN at Bushehr in early 1983. Notable is the construction consisting of simple cylindrical floats and masts with metal meshes. With many of the missile decoys being made of wire mesh, it often happened that an Exocet would get struck in their 'nets.' Amongst Iranian sailors, the recovery of such missiles thus became known as 'fishing Exocets'. (IRIN)



In addition to small and relatively simple missile decoys, the IRIN constructed several large examples, with dimensions of up to 17 metres. This was one example of a large decoy, consisting of a combination of corner deflectors and wire mesh. (IRIN) in Dezful, Dehloran, Abdanan, Mashrehat (Ahwaz), Mahshahr and Bushehr, that all needed repairs. The result was a critical shortage of spare parts – especially Twistron tubes – that for most of early 1983 rendered all but one of these radars non-operational. In other words: after trading so many hot punches in early 1983, both sides were exhausted and in need of repairs and reorganisation.

The Loss of *Iran Janan*

It was under these circumstances that the IRIN had to initiate its next convoy operation, on 10 March 1983. The northbound caravan included the following vessels: *Iran Estaghlal*, *Iran Janan*, *Iran Hemat*, *Iran Bayan*, *Iran Eslami*, *Amin* and *Yanixilas*. Two tankers are known to have travelled with this convoy as well but their names were not recorded. Initially, the northbound caravan progressed relatively well. However, around 10.30hrs, as *Iran Janan* was underway between Buoys No. 6 and 8, a missile detonated above it. The vessel was hauling a load of latex, a highly inflammable material, barrels of which were – contrary to instructions from TF.421 – distributed around the bridge. Thus, the detonation of the missile's warhead caused a large fire that rapidly spread. The crew of 16 had no option but to abandon the vessel: they were collected by an IRIN patrol boat, while the badly wounded master and another crewmember were flown out by an ASH-3D to Bushehr. Tugboats *Sistan*, *Karoun* and *Brees* moved in to extinguish fire and remove the ship from the danger zone, and around 13.00hrs the crew of *Karoun* reported that the fires were under control. It cut the anchor of *Iran Janan* and, together with *Sistan*, began moving the damaged ship back towards Bushehr. However, at 15.00hrs, *Iran Janan* received another – this time direct – hit from an HY-2. The force of the impact and the following warhead detonation was such that several cargo containers were thrown around, one of which damaged *Sistan*, wounding two of the crew. Indeed, the explosion caused *Karoun* to hit the hull of *Iran Janan* with such force that a big crack emerged on the tugboat's bow. With the vessel in danger of sinking, the crew of *Sistan* quickly stranded *Iran Janan* before refocusing on saving their colleagues: the two tugboats withdrew towards Khark, which they reached at 20.40hrs. On arrival, both immediately entered the NIOC drydock, to commence repairs.

Three days later, on 13 March 1983, the IRIN launched a recovery operation. Using one of its hovercraft, it deployed a damage control team aboard *Iran Janan*, led by the commander of TF.421 and a qualified chief engineer of the navy. The team managed to extinguish the fire that completely gutted the bridge but was forced to realise that it was impossible to restart the ship's engines without pumping the machinery spaces dry. Therefore, another hovercraft was called in to bring water pumps. Around 21.19hrs, tugboats *Sistan* and *Karoun* (meanwhile repaired at Khark) – accompanied by a wooden dhow carrying another navy repair team – returned to the scene and attempted towing *Iran Janan* back to Bushehr. Due to the low tide, it proved impossible to do so immediately: it was only at 22.21hrs that the vessel was refloated by the raising sea level and the small convoy began moving again. By then, the heat caused by continuous fire in cargo holds 4 and 5 of *Iran Janan* was such that the crew of *Karoun* was forced to constantly spray *Sistan* with water in order to cool it. To their luck, the tugboat *Brees* then joined the recovery efforts, and the three recommenced towing *Iran Janan* towards Bushehr.

However, at 23.10hrs, as the five vessels – the badly damaged merchant, three tugboats and the dhow carrying the repair team – were underway at a speed of three knots, the third Iraqi HY-2 came in: it slammed through the bridge and into the engine room. This time, the damage was fatal, so much water entered the machinery spaces, and then cargo holds 4 and 5, that 45 minutes later *Iran Janan* capsized and sank. The last caravan of the Persian calendar year 1361, thus ended with a painful and unnecessary loss.[41]

TF.421's New Rules

In the light of these experiences, the headquarters of TF.421 forwarded a set of stringent measures to the civilian and military authorities in Bandar-e Abbas and ports in the Sea of Oman:

> … Regarding the dispatch of caravans of commercial cargo ships and oil tankers from Bandar-e Abbas to Bandar Imam Khomeini and Mahshahr, henceforth it is mandatory to do the following:
>
> Inform us about the names of ships whose captains have declared their preparedness to travel all the way to Bandar Imam Khomeini.
>
> The ships in question must be well-prepared and have a minimum speed of 12 knots. They must be inspected by the representatives of the Islamic Republic of Iran Shipping Company and one of the navy's officers, and their condition must be reported in detail.
>
> Captains of the ships in question must be fully briefed on the mission and the situation in the area north of Khark.
>
> The captains of the ships must be advised that in the even of an accident, and as long as their vessel is still mobile and has an operational steering system, they are obliged to save the ship and take it out of the danger zone.
>
> During inspections of every such vessel, it must be made certain that every ship has damage control party and firefighting equipment ready for use at any time.
>
> At least two mobile firefighting pumps and related hosepipes must be prepared for every ship.
>
> All flammable materials loaded on the ship's deck must be unloaded at Bandar-e Abbas, and then transhipped by railway.
>
> All lifeboats must be inspected to ensure their readiness.
>
> A representative of the Islamic Republic of Iran must advise every captain that they do not have the right to disembark any of the ship's crew in Bandar-e Abbas or Bushehr, because this is resulting in a decrease of efficiency of the crew. Captains of ships facing a shortage of crew must provide enough crew before departure.
>
> All communication devices on every ship must be inspected to ensure their reliable functionality.
>
> The machinery and steering systems of every ship must be inspected by the authorities of the Islamic Republic of Iran to ensure their flawless function during the voyage.[42]

4

THE SEARCH FOR NEW SOLUTIONS

Although resulting in dozens of clashes as described above, in grand total, the Iraqi attacks upon the Iranian shipping and oil industry in the northern Persian Gulf in 1980–1982 can only be characterised as 'sporadic': except for keeping much of the IRINA busy, and tying down the interceptors of the IRIAF, their overall effect on the flow of the war was minimal. Certainly enough, they caused some damage to the merchants underway from Bushehr to BIK and Mahshahr – and back – as well as to the local installations of the oil-exporting industry of Iran. However, at that time the government in Baghdad was sinking ever deeper into dependence upon funding by the United Arab Emirates, Saudi Arabia, and Kuwait to avoid bankruptcy, and they completely failed to at least dent Tehran's capability to continue financing the war. The reason was a complex of doctrinal, operational, technical and training restrictions. While sometimes inflicting painful blows, the Iraqi Navy remained a small, brown-water service, hampered by the lack of firepower and precision necessary to deliver decisive blows against the Iranian convoy system. Constantly troubled by Saddam's micromanagement, the IrAF largely remained tied to supporting ground operations and possessed only a few aircraft with avionics enabling them to range at least to Khark and Bushehr. Finally, although the Iraqi intelligence worked ever better, the targeting information it was providing frequently left fighter-bomber pilots over-reliant on sheer luck.

Arguably, the situation on the other side could be described as dramatic. While the Iranians always found enough international owners willing to have their vessels involved in the shipping traffic to BIK and Mahshahr, TF.421 was slow in improving its organisation, and even slower with introducing at least improvisations with regards to new equipment, which were meanwhile urgently necessary. Moreover, it found no ways to improve coordination with the IRIAF, which in turn was showing ever more signs of wear and tear. As so often before and after, the flow of the naval – and air – war over the Persian Gulf in 1983–1984 was then strongly influenced by, at first glance, unrelated developments, on both sides of the tribune.[1]

Learning Lessons

At 06.00hrs on 31 March 1983, the IRIN launched its first convoy operation in the new year of the Persian calendar (1362). A total of 13 vessels raised anchor at the Bushehr anchorage, while seven left the docks of BIK and Mahshahr. The names of ships in the southbound convoy were *Iran Meelad*, *Iran Emamat*, *Iran Ershad*, *Iran Ehsan*, *Iran Sokan*, *Iran Adalat*, *Faizi*, *Good Friend*, *Gulf Hawk*, *Tabriz* (tanker), *Maroon* (tanker), *Vorras* (tanker) and *Panoceanic Fame*.

This operation received all the support the IRIAF could provide – even if TFB.7 reported just two fully mission capable F-14As around this time, and TFB.8 just five – and the crews of the ships could monitor an air battle between Iranian and Iraqi interceptors being fought for several hours in the skies above them. Eventually, all vessels reached their destinations safely. Indeed, the convoy in question travelled at the time the Iranian air force was probably in its worst condition throughout the entire war: the problems were not limited just to the lack of spares for its Tomcats, but also that of spares for its radar stations. At one point in time in April 1983, the IRIAF went as far as to uninstalled the last operational Twistron tubes from the radars in Sar Bandar and Abdanan, and installed them into systems at Dezful and Behbahan, respectively, thus stretching its view into the skies over southern Iraq.

On 12 April 1983, six Osas sortied down the Kuwaiti territorial waters and international sea lanes – covered by four MiG-23MFs and two Super Frelons – to attack the Iranian Abuzar and Sorush offshore platforms. They launched at least eight P-15 anti-ship missiles, hitting Abuzar twice and Sorush three times, and setting the former ablaze. Kaman-class missile boats of TF.643 were on the scene and reacted by pursuing the withdrawing Iraqis for several hours. Eventually, one RGM-84A Harpoon is known to have been launched, and the Iranians claimed to have sunk one Iraqi missile boat but no evidence for such a success has ever been presented.

Five days later, the IRIN initiated its next convoy operation. Launched at 06.00hrs on 17 April 1983, and codenamed Janbaz, this included 10 merchants and tankers in the northbound caravan: *Iran Nabuvat*, *Iran Seeam*, *Iran Towheed*, *Iran Shaheid*, *Iran Modares*, *Iran Vojdan*, *Iran Bahonar*, *Iran Vahdat*, *Good Transporter* and *Tzeleri*. Simultaneously, nine vessels left the berths in BIK and Mahshar for the southbound trip: *Iran Meezan*, *Iran Ershad*, *Iran Sokan*, *Amin*, *Hanifi*, *Tabriz* (tanker), *Maroun* (tanker), *Vorras*, *Good Friend* and *Panoceanic Fame* (tanker). Because of a delay, *Panoceanic Fame* was ordered back to BIK, where it had to wait for the next caravan. Meanwhile, three AH-1J Cobra helicopters of the IRIAA and one AB.212ASW of the IRINA carefully scouted the danger zone. They were followed by three patrol boats (hull numbers 208, 257, and 264), the navy's tugboat 210, the PMO tugboat *Kerman* and SAR boats 3 and 4. Amid this activity, and despite the presence of two F-4Es armed with AGM-65s, the Iraqis activated their HY-2 sites and Super Frelons. The first out of five anti-ship missiles fired from the Faw Peninsula all missed and exploded when crashing into the water, at 09.17hrs. Exocet-armed helicopters were reported around 09.26hrs: they fired four Exocets, all of which missed. The Phantoms then swooped towards the west and attacked Mina Khowr al-Amiyah with Mavericks, causing several fires: it was only at that point in time that the IrAF reacted – by scrambling a pair of Mirage F.1EQ-2s from Wahda AB. Around 11.35hrs, as the *Khoofash* warned that the Mirages were vectored to intercept ASH-3D serial number 5-8310 of the IRINA, a pair of IRIAF F-14As came in between, and both Iraqis withdrew north. Finally, between 13.10hrs and 13.23hrs, no fewer than 10 Silkworms were fired at the southbound caravan – but, once again: all of them crashed into the water without causing any kind of damage. Soon after, both convoys were outside the danger zone, and the operation was successfully concluded at 14.00hrs.

In his report about this operation, the IRIN officer in command of the northbound caravan bitterly complained about the lack of discipline amongst PMO pilots:

> A) Between 10.00hrs and 11.00hrs on 16 April, the ships started the passage from the Kalat anchorage [an emergency anchorage south-east of Bushehr] to the Bushehr anchorage. There was a total of 10 ships. Then, at 05.30hrs on 17 April, the convoy sailed towards the Khowr al-Moussa waterway.
>
> B) The convoy was ordered to maintain the speed of 12 knots, but the pilots did not pay much attention and most of the vessels accelerated as fast as they could. This is why the convoy reached Buoy No. 4 by 08.00hrs. I was embarked on *Iran Nabuvat*. Due to the radio silence, I attempted to attract attention of the pilots by ship's horn, but except for the crew of *Iran Vahdat*, nobody followed my orders to slow down. At 08.15hrs, I had to send a radio message to all the ships, but by then the ships were already in the Khowr al-Moussa, all still steaming at their maximum speed.[2]

The IRIN officer in charge of the southbound caravan had at least as many reasons to complain:

> A) The ships gathered at the inner anchorage of Bandar Imam Khomeini and commenced moving at 05.30hrs on 17 April 1983. After about half an hour, *Panoceanic Fame* ran aground. It was freed by the tugboats of the PMO and attempted to rejoin the caravan.
>
> B) The first ship in the caravan passed Buoy No. 28 and thus entered the danger zone at 08.30hrs. The cargo ship *Amin* then began moving left and right. The pilot obviously tried to get out of the area by increasing the speed while moving "under the shelter" of other ships. Because of this, Amin repeatedly had to leave the dredged canal and into the shallow water. It could do so because

An IRINA AB.212ASW crew seen at Naval Air Station (NAS) Bushehr in 1982. From left to right: Behroz Nader, Ali Kalantari, Enayat Zadeh, Akbar Zadeh, Mahmoud Keyvan-Rad and Ali Amani. (Sirous Ebrahimi Collection)

it was empty and thus sitting high in the water, but this action increased the chances of the ship being detected and attacked.

C) Due to the delay with the *Panoceanic Fame*, and in coordination with TF.421, the decision was taken to return this ship to Bandar Imam Khomeini.

D) Two powerful detonations were heard while ships were underway in the danger zone. Around 13.23hrs, another detonation was hard from the direction of the Bahrgansar GOSP.

E) Rangers deployed aboard the ships reported that all the anti-aircraft guns installed on ships were not operational. Indeed, that they were useless. Similar was true for about 90% of Sahand missiles [SA-7 MANPADs]. The two people assigned as radio-operators were unfamiliar with the equipment they were supposed to use.[3]

All for One, One for All

Emboldened by this success, and after arranging the first true combined arms operation with the air force and army, the IRIN hurried to organise the next convoy. Indeed, seven ships of the northbound caravan raised their anchors at 08.30hrs on 25 April 1983: *Iran Okhovat*, *Topaz Express*, *Euro Transponder*, *Good Lion*, *Al Tafseer* (tanker), *Vorras* and *Tabriz* (tanker). The southbound caravan included: *Iran Emamat*, *Iran Bahonar*, *Iran Ehsan*, *Iran Meelad*, *Iran Adalat* and *Panoceanic Fame* (tanker). Covered by two F-14As, three AH-1J Cobras, cloudy weather, and an artillery barrage of the 22nd Artillery Group that plastered the HY-2 sites at Ras al-Bisheh, both convoys passed entirely undisturbed and the operation was concluded at 14.20hrs.

The Iraqi Navy hit back during the night from 1 to 2 May, when two Osas attacked the Nowruz platform again. They launched a total of five missiles: two hit decoys, one crashed into the water, and another was shot down by an Iranian-operated 12.7mm Browning machine gun, but one scored a hit that killed the successful machine-gunner and wounded several others of the crew.[4] Once again, the warships of TF.643 reacted by initiating a pursuit of the retreating Iraqis, and IRIS *Shamshir* eventually launched a single RGM-84A Harpoon to destroy an Osa: this time, the success was confirmed when an ASH-3D picked up 12 survivors of the Iraqi crew.

At 08.30hrs on 15 May 1983, the IRIN launched its next caravan operation. Including a total of 28 commercial vessels, this was one of the biggest operations of this kind, ever. The northbound convoy included: *Iran Kalam*, *Iran Bayan*, *Iran Shahadat*, *Iran Entekhab*, *Iran Enghelab*, *Adib*, *Jami II*, *Euro Transporter*, *Al Baseer*, *Nazly*, *Panoceanic Fame* (tanker), *Good Dolphin*, *Mokran* (tanker), *Good Friend* and *Eastern Guardian*. However, TF.421 turned back two ships – *Nazly* and *Good Dolphin* – shortly after moving out, because their slow speed was causing them to lag behind. The southbound caravan included 13 merchants and two tankers: amongst them the *Good Luck*, towed by *Good Transporter* because of damage to its machinery suffered during earlier operations. Moreover, *Iran Vahdat* and *Iran Nabuvat* each towed a barge with missile decoy behind them.

Despite comprehensive preparations and similar volumes of support by the air force and army, the Iraqis reacted almost instantly. At 08.49hrs, *Iran Enghelab* was damaged by a HY-2 that hit the water aft of the ship: the ship lost power and stopped at the mouth of the Khowr al-Moussa, in between Buoys No. 32 and 23. At 09.12, two other Silkworms hit *Panoceanic Fame* as it was passing Buoy No. 12. A fourth missile then homed into the wrack of *Louis 1*, the first ship ever hit by an Exocet and stranded at the mouth of Khowr al-Moussa since 20 May 1981. The first Iraqi missile was deflected by chaff deployed by an escorting warship and detonated, harmlessly, while still airborne. Meanwhile, the merchant *Vorras*, involved in the southbound caravan, ran aground, but was freed with help of the tugboat *Kerman*.

Thanks to good preparations of all the involved crews, nobody was injured, but *Panoceanic Fame* was soon ablaze, lost steering and drifted out of the canal, where it sank. The fighting related to this convoy was hardly over when an Osa II missile boat of the Iraqi Navy made a brief appearance and fired four missiles at the Bahregan GOSP: fortunately for the crew, all missed.

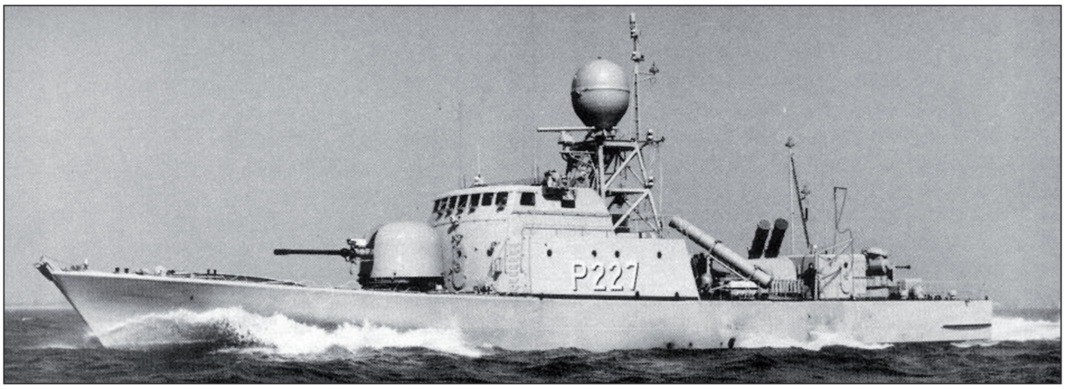
Nevertheless, that evening Baghdad proudly claimed the destruction of 'five large naval targets' in the northern Persian Gulf. Arguably, this was not only another exaggeration but the drama was actually still far from over. Indeed, repairs to *Iran Enghelab* were still going on when, at 09.07hrs on 23 May 1983, it was hit by another HY-2. As if this was not enough, around 12.40hrs the vessel – now unprotected because there was no caravan around – came under attack by Super Frelons and was also hit by an Exocet. Stubbornly, and with the help of the tugboats *Salvina* (leased by IRIN from the PMO) and *Tarigh Al Quds*, sailors of the navy continued working on fighting fires and commencing repairs on the machinery. Indeed, it took another Iraqi effort to stop them: around noon of 24 May 1983, *Iran Enghelab* was subjected to a third attack and hit by two Exocets that completely demolished the island and machinery spaces. Realising that the situation was hopeless, TF.421 then issued the order for the ship to be abandoned. By then, several IRIN sailors and some of the *Salvina*'s crew were dead, four Filipino crewmembers of *Iran Enghelab* were missing, one Iranian electrician from the same crew and a severely injured Filipino sailor had to be evacuated by helicopter to Bushehr, while two crewmembers of *Tarigh Al Quds* and three from one of the IRIN patrol boats suffered only light wounds.

On 23 May 1983, the ship *Iran Enghelab* was rushed from Bushehr to BIK on its own and with minimal protection. Rather unsurprisingly, it was hit by an Exocet and badly damaged, requiring the assistance of tugboats to continue its voyage. The following morning, while in the process of being towed out of the danger zone, it was hit again: the crew managed to extinguish the fire and the vessel was towed to the anchorage of Bandar-e Imam Khomeini. While salvage teams were working on saving and unloading the cargo of *Iran Enghelab*, on 29 May 1983, the ship came under a third and final attack: this caused so much damage that the vessel sank in place. Fortunately for those on board, nobody was injured, despite four successive Exocet hits.

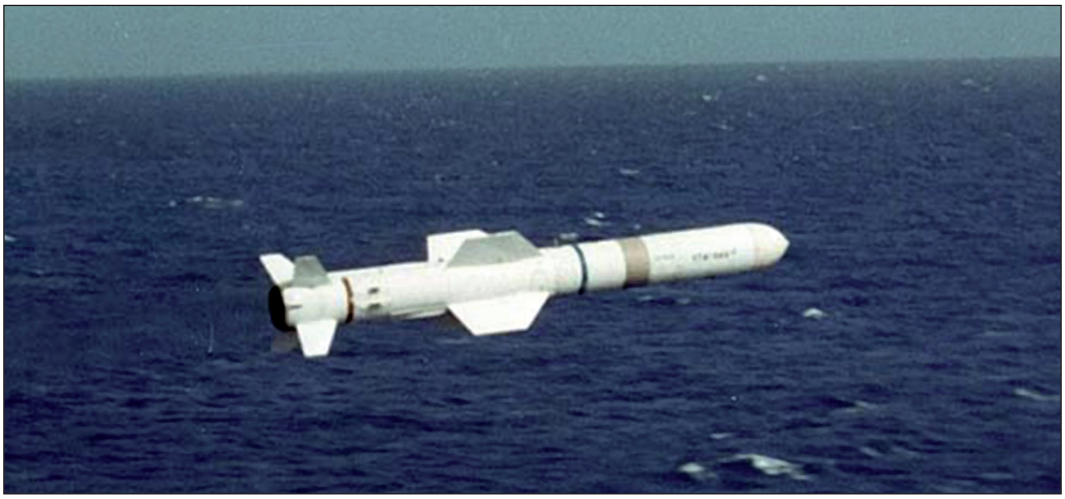
Bitter Blows

The next caravan operation was initiated on 31 May 1983, and conducted as part of Operation Torpedo-2 (i.e. by day). The northbound convoy included 12 ships: *Iran Besat*, *Iran Azadi*, *Iran Borhan*, *Iran Ehsan*, *Iran Nahad*, *Iran Jahad*, *Iran Etemad*, *Faizi*, *A. P. J. Prity*, *Good Dolfin*, *Tabriz* (tanker) and *Dana* Joei (tanker). The southbound caravan included seven vessels: *Iran Kalam*, *Iran Bayan*, *Iran Shahadat*, *Al Baseer*, *Topaz Express*, *Euro Transporter* and *Mokran* (tanker).

While serving as deputy commander of IRIS *Kahnamuie*, 1st Lieutenant Sharif Farzad-Nia did everything in his power to save the corvette. Two years later, he was assigned the command of the Kaman-class missile boat IRIS *Shamshir* (227) and received the opportunity to avenge his former command. This photograph shows him (centre, leaning forward) with crewmembers of IRIS *Shamshir* in 1984. (IRIN)



The future IRIS *Shamshir* (P227) of the La Combattante II/Kaman-class, seen during builder's trials, before delivery. On 2 May 1983, this missile boat scored one of few confirmed kills against an Iraqi Osa, using an RGM-84A Harpoon anti-ship missile. (CNM)



A Harpoon anti-ship missile seen in flight (gauging by the blue band around the centre fuselage, this was a training round: an operation example would have been marked with a yellow fuselage band). Similar in function to the AM.39 Exocet, the Harpoon had a much more sophisticated seeker head, and was turbojet-powered weapon with a maximum range of around 70nm (130km). (McDonnell-Douglas)

Tabatabai's Networks and Peace Log

Early 1983 saw the peak of Iranian clandestine acquisition of arms, spare parts and ammunition from Western sources. Several businessmen became such experts in smuggling, that one of them managed to acquire 500,000 105mm and 155mm artillery shells in France; another obtained at least a planeload of BGM-71 TOW anti-tank guided missiles from West Germany, while the third experienced few problems in procuring spares for Iranian hovercraft, warships, Rapier SAMs and other items of British origin directly from Great Britain. Particularly successful proved the chain of bogus companies set up by Sadeq Tabatabai – former deputy prime minister of Iran, stationed in West Germany. Active in several countries of Western Europe, in the United Arab Emirates, Singapore, and Hong Kong, and via several middlemen, Tabatabai proved capable of acquiring arms even directly from the USA, as well as from depots of the US Navy in Subic Bay, Philippines. In this fashion, the Iranians received spare parts for F-14A Tomcats and P-3F Orions, and for AIM-54A Phoenix, AIM-7E Sparrow, AIM-9 Sidewinder and RGM-84A Harpoon missiles. To his aid came the fact that the customs checks in much of the USA, and also in the Netherlands, Singapore, and Hong Kong were so lax, that it proved easy to redirect consignments arriving from the USA and Canada, straight to the Islamic Republic of Iran without any inspections. It was in this fashion that the IRIAF began a gradual recovery throughout this year. Of course, much of this activity resulted in increasing maritime traffic to the Iranian ports, which in turn required escort operations by the IRIN.

That said, an even more important development in this regard occurred in early 1983, when engineers of the IRIAF managed to restore Project Peace Log. Initiated in cooperation with Lockheed in 1976, and worth US$350 million, this was a computer-supported logistics system controlling the stocks and the flow of spare parts and ammunition for all branches of the armed forces. At the time, Iran was acquiring such amounts of weapons and war material that their transhipment, storage and distribution jump-started its own industry sector.[5]

Unsurprisingly considering the chaos of 1978–1983, the Peace Log system fell apart and by the time of the Iraqi invasion there were many instances where nobody knew where to find what spares, nor could say exactly how much ammunition there was in the country's depots. The restoration of Peace Log became possible through logistics personnel of the IRIAF working around the clock for three years just to find piles of unlisted parts in remote warehouses or storage depots of different ports, military depots scattered all over the country (often in semi-finished military bases), count these and then re-enter the resulting data into the same computer system. However, once this process was completed, it greatly enhanced the responsiveness of both the IRIAF and IRIN to maintenance requirements. Amongst others, it enabled the air force and navy to reactivate all of their maintenance facilities and completely restore the capability to maintain and overhaul their combat aircraft, helicopters, and warships, and that with 100 percent self-sufficiency. Perhaps the best example of results was that starting in mid-1983, the IRIAF proved capable of slowly increasing the number of its F-4E Phantoms and F-14A Tomcats in fully mission capable condition.

An F-14A of the IRIAF undergoing overhaul at the Iranian Aircraft Industries compound in Mehrabad. As much as apparently unrelated, this work was of crucial importance for the IRIN's capability to continue escorting convoys to BIK and Mahshahr: in turn, this work was at least in part possible thanks to IRIN convoy operations, which secured the arrival of many necessary spares. (Farzin Nadimi Collection)

This operation received support not only in the form of bolstered air defences, and artillery shelling of the HY-2 sites at Ras al-Bisheh but was well-protected by F-14As from TFB.7, and F-4Es from TFB.6. Indeed, in attempt to intimidate the Iraqi Super Frelon crews, that morning the Iranian fighter jets broke the sound barrier while passing closely above Mina Khowr al-Amiyah and Mina al-Bakr three times. Undeterred, the Iraqi ground crews at Umm Qasr AB scrambled to equip their helicopters with AM.39 Exocets, and they were sent into the attack, one after the other, as soon as ready. The first Exocet was detected by the Iranians at 09.19hrs: it homed into *A. P. J. Prity*. Badly damaged, this Indian-owned merchant lost power and steering, and stopped. With the help of two tugboats, it was towed back to the Bushehr anchorage, and run aground to prevent sinking and the loss of its cargo. The second Exocet was launched around 09.30hrs from the Ras al-Bisheh area, but its firing was observed by the army and its flight route then followed by an IRINA helicopter until the missile harmlessly fell into the water. Launched at 09.31hrs, the third missile went for *Iran Azadi* and hit the ship as it was about to reach the mouth of the Khowr al-Moussa: however, it failed to detonate and the vessel remained capable of completing its trip. Launched at 10.12hrs from the Ras al-Bisheh area, the fourth missile then hit the tanker *Panoceanic Fame*, causing a major conflagration in the machinery spaces. After the PMO pilot managed to veer the ship to a course outside the canal, the crew was evacuated and the tanker subsequently settled down in the shallow water.

Even then, the Iranian troubles were far from over. Two days later, on 2 June 1983, as the tugboat *Kerman* was still towing *A. P. J. Prity* to Bushehr, the ship's damaged steering failed, and locked in full starboard position. The crew of the tugboat managed to counter by pushing the starboard side of the towed ship, then moved the rudder into the centre position and stabilised its course. However, at 16.00hrs, the merchant's steering failed again: as *Kerman* was tied tightly to the towed ship, it was suddenly pulled to the right, which caused it to capsize and sink. It needed the IRIN to dispatch two other tugboats to finally bring *A. P. J. Prity* back to the Bushehr anchorage.[6]

Air Defence Ships

In the light of heavy losses on 15 and 31 May, the IRIN made the decision to arm *all* the vessels involved in convoy operations. The order addressing TF.421 and the armament were explained as follows:

> Regarding escort operations for caravans, henceforth, every involved ship should receive at least one .50 calibre [12.7mm] machine gun, [or] better 23mm anti-aircraft gun, crewed by IRIN sailors:
>
> - TF.421 will estimate the number of necessary weapons and notify the HQ 1st Naval Region in Bandar-e Abbas.
> - The HQ 1st Naval Region is to request the weapons in question from all the bases where 23mm anti-aircraft guns are stored, collect these and send the weapons and necessary personnel to the HQ 2nd Naval Region, in Bushehr.
> - TF.421 will prepare a plan for the loading and unloading of weapons, depending on ship movements.
> - This order is to be implemented within five days of its arrival.

Eventually, TF.421 did much more: starting in mid-May 1983, it took care to equip every merchant and every tanker involved in convoy operations – irrespectively of their nationality – with not only one or two machine guns, but with two Soviet-made ZU-23 twin 23mm autocannons, together with necessary crews. Indeed, ships carrying sensitive cargoes regularly received a pair of 12.7mm Browning machine guns. With the action of collecting automatic cannons, machine guns, crews and ammunition proving highly successful, the IRIN then went a step further and began converting a number of requisitioned merchants through the installation of up to six ZU-23s, to act as air defence platforms. The resulting 'air defence ships' were all commanded by IRIN officers, but all the artillerists were provided by the personnel of the Islamic Revolutionary Guards Corps (IRGC). The most prominent amongst these air defence ships were six Polish-built cargo vessels of the Iran Kalaam-class.[7]

New-Model Caravans

With necessary preparations taking their time, the next caravan operation was initiated only on the early morning of 25 June 1983. The northbound caravan consisted of 12 merchants and two tankers, accompanied by two tugboats. The IRIN documentation is incomplete in regards of all the ship names, but confirmed to have been involved are: *Iran Jahad*, *Iran Etemad*, *Iran Ehsan*, *Iran Besat*, *Iran Sokan*, *Adib*, *Good Friend*, *Good Dolphin*, *Eastern Guardian*, *Jami II*, *Al Baseer* and *Tabriz* (tanker). The southbound caravan consisted of 10 merchants and one tanker: *Iran Shaheed*, *Iran Ekram*, *Iran Adalat*, *Iran Sokan*, *Iran Hemat*, *Iran Emamat*, *Iran Towheed*, *Iran Ershad*, *Iran Meezan*, *Anis*, *Good Breeze*, *Good Lion*, *Gulf Spray* (tanker) and *Minab* (tanker).

The northbound convoy reached the danger zone at 07.00: about quarter of an hour later, as the two caravans began passing each other, two F-4Es from TFB.6 attacked Mina Khowr al-Amiyah. This attack was repeated by another two Phantoms at 10.14hrs. Nevertheless, Super Frelons of No. 101 Squadron of the Iraqi Navy were meanwhile loaded with Exocets and airborne. At 09.40 and 10.29hrs, they were observed launching two Exocets. The first hit the *Iran Sokan* but failed to detonate, while the second missed and crashed into the water. The other 24 vessels all completed their voyages without further incident.

At 06.30hrs on 10 July 1983, 12 merchants and tankers of the next caravan commenced picking up their anchors from the BIK anchorage. Thus began the next convoy operation, codenamed Samander, which also included seven merchants and two tankers underway from Bushehr to Bandar-e Khomeini. Amongst the latter were: *Iran Nabuvat*, *Iran Meelad*, *Iran Salam*, *Iran Gheyamat*, *Asil*, *Al Towfigh*, *Good Ocean*, *Tabriz* (tanker) and *Esperanza* (tanker). On the way from BIK to Bushehr were: *Iran Nahad*, *Iran Emamat*, *Iran Meezan*, *Iran Azadi*, *Iran Ekram*, *Iran Borhan*, *Iran Entekhab*, *Dana Joy* (tanker), *Scape Trade* (tanker), *Gulf Spray* (tanker) and *Minab* (tanker).

At 07.32hrs, the radar of one of the IRIN warships picked up a low-flying target approaching the caravan at a very slow speed and vectored one of the escorting F-4Es – callsign Simorgh 52 – to intercept. However, the Phantom crew failed to detect the target in question. The same warship thus promptly directed one of the escorting AH-1Js in the same direction. The Cobra crew eventually detected an Iraqi Super Frelon visually, and approached to about one mile, but then suffered a series of mechanical defects, which prevented it from opening fire: the two frustrated Iranians were thus only able to watch the 'fireworks' of the following minutes. At 07.44, as the northbound caravan began entering the Khowr al-Moussa, the Iraqi helicopter launched two Exocets. Only one of the missiles came anywhere near the convoy, but this homed in on *Asil*, promptly

BRITISH TEST

The tanker *Minab* (here seen while operated by its earlier owner and named *British Test*) was one of the vessels used to haul distilled fuels to BIK in 1983–1984. (IRIN)

Starting in 1983, the bulk carrier *Adib* became regularly involved in convoy operations. Whenever underway with one of the caravans, the ship was armed with two ZU-23s positioned on the deck, and had a team of six SBS commandos armed with Sahand MANPADs (SA-7s). (Photo by John Pitcher)

setting its machinery spaces and bridge on fire. Out of control, the ship ran aground near Buoy No. 28. A Bell 214 helicopter of the IRIAF was soon on the scene to evacuate the crew. Then, at 08.02hrs, an HY-2 Silkworm missile was fired from one of the sites at Ras al-Bisheh: however, this passed high above the convoy and homed in on the Bahregansar GOSP, well to the east, killing one of the air defence crew, and wounding several others. Left on their own, the two tugboats and their salvage teams did their best to save *Asil* and its cargo, but to no avail. The ship was eventually declared CTL. The other involved vessels all reached their destinations safely.

Foxbats over Khark

Starting from April 1982, No. 87 Squadron, IrAF began deploying its MiG-25Rs (ASCC/NATO reporting name 'Foxbat') on regular reconnaissance missions over Khark and Bushehr. With this type having the capability of climbing to an altitude over 70,000ft (21,336m) and accelerating up to Mach 2.8, it remained above the engagement envelope of the MIM-23B I-HAWK sites deployed for the protection of Khark and TFB.6. Therefore, the only chance the IRIAF had to stop Iraqi MiGs from overflying this sensitive area was with its F-14 Tomcats. However, every sortie of a MiG-25R was carefully prepared and thanks to SIGINT-gathering Unit 128, the IrAF was in a relatively good position to monitor – and thus avoid – Iranian Tomcat operations. Moreover, although its AIM-54A Phoenix missiles had an excellent snap-up capability, in order to actually shoot down a MiG-25, an F-14 had to be almost perfectly positioned: preferably directly in front of the incoming MiG, underway at supersonic speed and at an altitude higher than 30,000ft (9,144m). Thanks to support from Unit 128, the pilots of No. 87 Squadron became experts in avoiding presenting this firing option to their enemies. They would only enter the area above Khark and Bushehr if there were no Tomcats around, if they were busy with in-flight refuelling, or on the eastern leg of their racetrack pattern on the 'Daylan' CAP station. In the few cases where the Iranians managed to take them by surprise, Iraqi MiG-25R pilots were warned by their Sirena-3M radar warning receivers as soon as 'painted' by emissions from the AWG-9 radar and aborted their mission by flying a 180-degree turn.[8]

The resulting game of cat-and-mouse went on for months, with the Iraqis becoming ever bolder. On several occasions they continued their missions even in the presence of IRIAF F-14As, counting on their radar warning receivers to warn them in time if there was any kind of serious trouble. The idea worked until the early morning of 23 July 1983, when a MiG-25R piloted by Lieutenant Colonel Abdullah Faraj al-Azzawi, the commander of No. 87 Squadron, took off from Abu Ubayda AB, outside al-Kut in southern central Iraq. At first, he took a south-eastern course and accelerated to Mach 1, before continuing to climb and reaching Mach 2 over Basra. At that point in time, Unit 128 reported that it had intercepted a message from a Tomcat airborne on the 'Daylan' station that it was about to undergo in-flight refuelling. Moreover, it announced to the Air Defence Operation Centre (ADOC) of the IrAF, at Muthenna AB in Baghdad, that the other F-14A was in the process of moving along the east-bound leg of its racetrack pattern. Assessing that the Iranians thus had only minimal chances of successful intercept, the Iraqi ground control ordered Azzawi to proceed with his mission.[9]

When detected by the IRIAF radar station in Bushehr, around 07.00hrs, the MiG-25R was already underway at Mach 2.5 and an altitude of 70,000ft (21,336m). Much to the surprise of the Iraqis monitoring the following action, this happened just around the

An F-14A (serial number 3-6027) seen refuelling from a Boeing 707-3J9C tanker over the mountains of western Iran. (Tom Cooper Collection)

Colonel Shahram Rostami (centre, light blue shirt), with pilots and radar intercept officers of TFB.7, seen later during the war. Standing second from left is Assad Adeli, the pilot credited with downing three Iraqi jets with a single AIM-54 over the northern Persian Gulf in January 1981. Directly to Rostami's right is Fazlullah Javid-Nia, who shot down at least two Iraqi MiG-23MFs while providing top cover for various caravans. (Sajed.Ir.)

time an F-14A Tomcat from TFB.7 completed its in-flight refuelling from a Boeing 707 and returned to its CAP station. For the first time ever, an Iranian Tomcat had not only the necessary fuel but was also perfectly positioned to initiate a successful intercept. That said, the crew in question – including Colonel Shahram Rostami (back then the Deputy Operations of TFB.7) as pilot and 1st Lieutenant Muhammad Rafiee as radar intercept officer – had to hurry up: in order to increase their chances of success they had to accelerate and climb as fast as possible, while moving into a position directly in front of the incoming MiG. When Rafiee picked up the incoming MiG-25 for the first time, it was still nearly 150 nautical miles (278km) away. The range decreased rapidly, though, as Rostami turned head-on into the opponent and began climbing to an altitude of 37,000ft, while accelerating to Mach 1.5. Before long, the MiG was only 38nm (70km) away. Five seconds after achieving a lock-on with the AWG-9 radar, Rostami ordered Rafiee to open fire: with the range meanwhile decreasing to 36nm (64km), the big AIM-54A Phoenix fell from the Tomcat, its engine ignited and the missile then thundered upwards and away. Both Iranian crewmembers followed the long trail of white smoke launched by the Phoenix as it sharply climbed into a snap-up engagement before its motor burned out. As the computer-calculated time-to-impact on their displays showed 'zero', an impact symbol appeared too. Moments later, the radar station in

Bushehr confirmed that the Iraqi jet was shot down. The wreckage fell into the sea off Genaveh but, as far as is known, the body of Lieutenant Colonel Azzawi was never found. The Iranian F-14s thus scored their first *confirmed* kill against an Iraqi MiG-25R.[10]

Operation Shabahang: the Biggest *Caravan*

The reason for Azzawi's mission over Khark was the need to collect intelligence about IRIN preparations for its next convoy operation. Codenamed Shabahang, this included a total 23 merchants and tankers. In the northbound convoy were: *Iran Towheed*, *Iran Shaheed*, *Iran Estaghlal*, *Iran Reshadat*, *Iran Eslami*, *Iran Seeyam*, *Al Tamar*, *Mariner*, *Vera One*, *Paciffc* and *Kefalonia*. In BIK and Mahshad, following ships prepared for the southbound trip: *Iran Nahad*, *Iran Emamat*, *Iran Meezan*, *Iran Azadi*, *Iran Ekram*, *Iran Borhan*, *Iran Entekhab*, *Faizi*, *Minab* (tanker), *Dana Joy* (tanker), *Scape Trade* (tanker) and *Gulf Spray* (tanker).

Much to the surprise of almost everybody involved, Operation Shabahang encountered no disturbances from the Iraqi side at all, and all ships reached their destinations safely. This turned out to be a blessing, because in the light of the IRGC launching its ground offensives Val Fajr-2 and Val Fajr-3, the IRIAF felt forced to uninstall the Twistron tube from the Sar Bandar radar, and use it to power-up the Abdanan radar, to better cover the combat zone further north. Therefore, both this and the next convoys had to travel without any kind of radar support. However, with the ships in question carrying goods that were in urgent need not only by the Iranian armed forces, but the civilian population too – like rice, cooking oil, sugar, car fuel and other petroleum products – TF.421 received an order to push on regardless of the circumstances.

Once again conducted under the codename Samander, the next caravan from Bushehr consisted of 13 vessels that started their voyage at 09.00hrs on 11 August 1983. The southbound convoy included just six empty ships. The IRIAF provided top cover in the form of one pair each of F-4Es and F-14As. However, and once again, the Iraqis took the Iranians by surprise – though their absence. Although one ship carrying highly inflammable fertilisers ran aground, both caravans reached their destinations safely. Indeed, even the stranded vessel was refloated a few days later and reached BIK without further problems.[11]

The IRINA initiated its 10th caravan in the Persian calendar year 1362 on 24 August 1983, when the northbound convoy of 14 ships raised their anchors from the Bushehr anchorage. Simultaneously, 12 ships left the docks of BIK and Mahshahr. At 07.30hrs, the Iraqis took the Iranians by surprise when one Super Frelon sneaked at low speed upon the convoy and launched two Exocets: one slammed into the *Iran Rashdat*, killing one of the crew and wounding another, and causing so much damage that the ship eventually sank; the second hit the bulk carrier *Iran Enghelab* but caused only light damage. The IRIAF reacted by scrambling an F-4E from TFB.6, and this hit Mina Khowr al-Amiyah with two Mavericks, but the Iraqis remained keen to fight on. At 09.13hrs, as Iranian F-14s and Iraqi MiG-23s clashed over the northern Persian Gulf (and the Iranians claimed one Iraqi jet as shot down), another Super Frelon launched two Exocets. However, this time, it did so from much too long a range: both missiles crashed into the sea well before reaching the caravan.

More than three weeks passed before the IRIN is known to have run the next convoy operation. At a very unusual time – around 11.00hrs – on 12 September 1983, a total of 21 merchants and tankers moved out of the Bushehr anchorage, while 14 ships left the piers of BIK and Mahshahr. Not only because it included a number of vessels carrying 'special' cargo for the Iranian armed forces, this operation received particularly heavy protection: supported by the reactivated radar stations at Omidiyeh and Bushehr, the IRIAF put no fewer than 16 F-4Es and F-14As into the air that day, and supported them with four Boeing 707-3J9C tankers. Nevertheless, the crew of an Iraqi Super Frelon found a way to approach the convoy in its now usual fashion: by moving at a very low speed. The helicopter launched two Exocets both of which homed in on the *Iran Shahadat*, causing a major conflagration: a few hours after the crew were evacuated, the ship sank. While trying to avoid the damaged vessel, the Indian-flagged *Adib* – a merchant underway with the southbound convoy – collided with another ship and had its life rafts and the rescue boat on the right side completely smashed in the process. The vessel was, however, quickly repaired in Bushehr, using parts and other equipment from the sister-ship *Asil*.[12]

Phoenix vs Silkworm, and Sidewinders and Sparrows vs Osas

Another caravan in both directions was run on 28 September 1983: protected by five F-14As, all the 15 merchants and tankers underway northbound, and all the 13 vessels underway southbound passed without any kind of problem. The situation was diametrically opposite in the case of the convoys underway on 31 October 1983. This time, 20 merchants travelled from Bushehr to BIK and Mahshahr, while 14 were underway in the opposite direction. Four F-14As were on CAP stations, and their presence was effective in deterring Iraqi fighter-bomber units. However, the Iraqis had other tools to hand. At 12.21hrs, a single HY-2

Iran Adalat underway with a load consisting of a mix of commercial containers and vehicles. Whenever involved in convoy operations, it would have at least one ZU-23 anti-aircraft gun positioned atop the forward cover for the cargo bay, and another on the main deck, behind the bridge. (IRISL)

Silkworm missed the convoy and crashed into the water. Four minutes later another followed in similar fashion. Then, at 13.25hrs, both the IrAF and navy attacked at the same time: the crew of the F-14A callsign Shabdiz 73, detected the incoming missile with their AWG-9 radar, and targeted it with a single AIM-54A Phoenix but missed: the weapon then went on to slam into the merchant *Avra*, underway under the Greek flag, causing it to veer off course and hit a sand bank. The Iraqis reattacked at 15.15hrs, prompting an inconclusive engagement with two Tomcats, which ended with IrAF fighter-bombers retreating north. However, the site at Ras al-Bisheh then fired another Silkworm and this hit the *Avra* again: ultimately, the crew evacuated the vessel and it was declared a CTL. Other ships of both the northbound and southbound convoys managed to reach their destination safely.

Because the IRIN had launched an operation aiming to salvage the cargo aboard *Avra*, the action was continued into the night, when two Osas attempted to approach from the west. TFB.6 promptly scrambled a single F-4E armed with AGM-65 Mavericks, while the missile boat IRIS *Zoubin* engaged the Iraqis with its 76mm gun. Eventually, the Iranian warship managed to score a hit on one of the Iraqi FACs, causing it to stop. At that point in time, another F-4E from Bushehr – callsign Arz 51 – appeared on the scene. Its enterprising crew then achieved a lock-on against the Iraqi boat with one of its AIM-9J Sidewinder infrared air-to-air missiles, opened fire and scored a direct hit. However, the Osa was still afloat. Therefore, early the next morning the Iraqi Navy dispatched a tugboat to help. Around 10.20hrs, the same F-4E crew that had already hit the Osa with a Sidewinder was back in the air, and then repeated the exercise, this time firing an AIM-7E2 Sparrow semi-active radar-homing air-to-air missile. A much bigger weapon than a Sidewinder, carrying a 30kg (65lbs) warhead, the Sparrow scored a direct hit, causing the Iraqi missile boat to sink. The tugboat was then left to pick up survivors.

Almost a month passed before the IRIN organised the next known convoy. As now usual, this was a big operation, with 16 merchants and tankers travelling from Bushehr to BIK and Mahshahr, and 17 moving in the opposite direction. Obviously, both the Iranian navy and air force found it easier to protect such caravans – which is unsurprising: the ‘investment’ in terms of support and escort operations was the same, regardless of how many civilian vessels were involved. Equally ‘usual’ was the timing: the operation was initiated early in the morning of 21 November 1983 and conducted by daylight. This time, the Iraqis reacted ferociously: at 08.55, 09.08, 09.40, and 10.27hrs, a total of seven HY-2 Silkworms were launched from Ras al-Bisheh. Not one scored a hit. However, while avoiding them, the Greek bulk carrier *Antigoni* veered off course, ran aground and was quickly abandoned by the crew, which left it to sink after claiming to have been hit ‘by an Exocet’ although the Iraqis had not fired even one that day. While this was going on, MiG-23MFs and Mirage F.1EQs of the IrAF attempted to attack an ASH-3D Sea King helicopter of the IRIN, while it was patrolling the area around Buoy No. 23. In turn, they were engaged by two Iranian F-14s in air combat, in which the Iraqi pilot Nawfal Sha’ban claimed one of the Tomcats as shot down. Actually, the F-14A in question was damaged, but Lieutenant Colonel Hashem All-e-Agha managed to return it safely to TFB.6.

On 28 September 1983, IRIS *Zoubin* had a successful engagement with two Osas, hitting one of them with its 76mm gun, leaving it dead in the water. (CMN)

The Greek bulk carrier *Antigoni* ran aground while avoiding an ‘Exocet,’ on 21 November 1983, and was then abandoned and left to sink by its crew. Although it was never hit by the Iraqis, the owner claimed that the ship was wrecked by an Exocet. (PMO)

Sha'ban's Comeback

For years, the Iraqi Navy wanted to benefit from cooperation with the air force, but the latter proved uninterested. Indeed, at some point in time the situation reached a point where General Kabi subsequently recalled 'there was an unbridgeable wall between the two services.'[13]

This situation experienced a fundamental change almost as soon as Saddam Hussein decided to replace Major General Mohammed Jisam al-Jabouri with Major General Hamid Sha'ban at-Tikriti as commander of the IrAF in late 1983. Sha'ban was a highly experienced officer trained to fly Hunters in the UK in the late 1950s; then serving as commander of Taqqaddum AB, and Deputy Commander IrAF for Training, before being appointed the commander of the air force in 1976–1979. It was during his command that Baghdad not only placed orders for Mirage F.1EQs in France, but also advanced versions of MiG-23s and MiG-25s in the USSR, and began the build-up of its COMINT and SIGINT-gathering capabilities. However, because Sha'ban was a native of Saddam's hometown of Tikrit, a member of the Ba'ath Party since the early 1960s, and supporting it during multiple coups in the 1960s, and thus considered loyal by Saddam, this decision was badly misunderstood by many – and is frequently misinterpreted by others (often even today). Indeed, Saddam's decision to reappoint Sha'ban was as criticised by many IrAF officers as in US intelligence assessments. While the former group complained about his 'lack of understanding for pilots', and some described him as a 'Sunni extremist', the US linked Sha'ban's reappointment to his proximity to Saddam, and argued that he was picked because the strongman in Baghdad was sure Sha'ban would not challenge the regime's handling of air operations.[14]

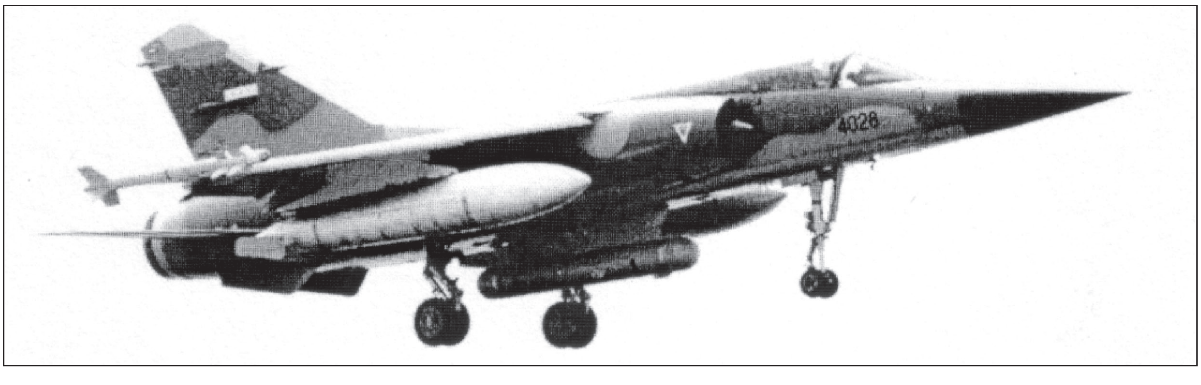
Actually, once back in office, and precisely because of his good relations with Saddam, Sha'ban was in a perfect position to initiate a fundamental reform of the IrAF's strategy: understanding air power as an offensive branch, capable of operating independently from ground and naval forces. He not only began ordering his commanders to conduct ever more massive air strikes on Iran but began seeking for the ways to damage the Iranian economy to a degree where it would become unable to support the war. The Iranians – and TF.421 of the IRIN, as well as TFB.6, TFB.7, and TFB.8 of the IRIAF – were to strongly feel Sha'ban's influence upon IrAF operations within weeks of him assuming command.

Air Battles of December 1983

The starting point at which Sha'ban changed the tactics of IrAF operations against the IRIN convoy operations can be traced back to the end of 1983, when his service began ever more closely coordinating with the navy. In December that year, Super Frelons of No. 101 Squadron were deployed once again to mine the southern entrance to the Khowr al-Moussa. Therefore, TF.421 had to organise a large mine-clearing operation. Conducted over several nights, this was supported by the now-repaired IRIAF radars at Sar Bandar and Bushehr, and F-14As that flew combat air patrols by night. Once the sea was declared safe, the next convoy operation was initiated on 8 December 1983. A column of 10 merchants was underway to BIK and Mahshahr when, at 11.00hrs, a formation of Su-22M-3s from No.5 or No.109 Squadron, escorted by four MiG-23MFs from No.

An Inauspicious Pod

In January 1983, the Electronic Reconnaissance Flight of No. 79 Squadron, IrAF, flew the first operational sortie with another new device: the Thomson-CSF TMV-018 Syrel ELINT pod. With hindsight, it can be said that this was the most important single element of the entire Iraqi effort to buy Mirage F.1EQ interceptors and fighter-bombers from France. Syrel was capable of detecting all types of radars within about 250 kilometres around it, processing and sorting them out, and reporting their position to associated ground stations deployed on a north-south axis along the borders with Iran. Using Thomson-CSF TFH troposcatters, Thomson-CSF TFH 150 line-of-sight equipment, and a network of electro-optic cables laid down by the Swedish company Ericsson, the latter were feeding collected intelligence directly into the main computer of the KARI integrated air defence system and automated tactical management system, installed in the ADOC of the IrAF at Muthenna AB in Baghdad. Correspondingly, thanks to the Syrel, and for the first time ever, the leadership of the IrAF not only obtained the technical capability to precisely track the work of the Iranian air defences (including interceptors like the F-14A) in real time, but also for the officers at ADOC to instantly analyse the tactical situation, arrive at corresponding decisions, and issue appropriate orders. From that point onwards, Mirages equipped with Syrels were to accompany every single strike package launched by the IrAF for the rest of the war with Iran, regardless of whether performing close air support, battlefield interdiction, anti-ship, or strike operations deep inside Iran.[15]



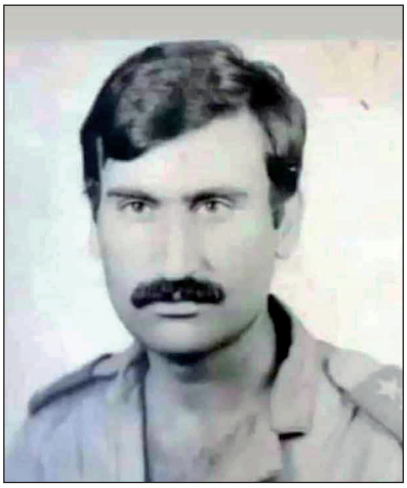
A Mirage F.1EQ-2, equipped with Thomson-CSF TMV-018 Syrel ELINT pod under the centreline (in addition to two RP.35 drop tanks and a pair of Matra R.550 Magic infrared-homing air-to-air missiles on wingtips), seen in the process of returning from an operational sortie. (Ahmad Sadik Rushdie al-Astrabadi Collection)

67 Squadron was picked up by Iranian radars while crossing Khowr Abdallah south into Kuwaiti airspace. Unknown to the Iranians, Iraqi interceptors and fighter-bombers were supported not only by at least one Mirage F.1EQ-2 equipped with a Syrel ELINT pod, but also two equipped with Thomson-CSF TMV-004 Caiman offensive electronic warfare pods. With help of these tools, officers at the ADOC managed the entire battle from afar, essentially by remote control.[16]

As the ground control in Bushehr vectored two F-14As (callsigns Khyber 82 and Khyber 83) the Iraqis turned east and ran a determined attack on the convoy. While the MiGs managed to engage and thus distract the Tomcats in air combat at a short range, the Sukhois passed by to attack with unguided rockets. To the surprise of the Iraqi fighter-bomber pilots, multiple merchants in the convoy opened fire with their ZU-23s and SA-7s, greatly disturbing their aim: as a result, only a few of the 57mm rockets found their mark, and these caused minimal damage to the Greek merchant *Iapetos*. The vessel continued its voyage to BIK.

The second Iraqi formation of MiG-23MFs and Su-22M-3s followed in fashion at 12.00hrs, as one of the Tomcats was busy with in-flight refuelling. Although hopelessly outnumbered, the crew of the other F-14A engaged the enemies and shot down one Su-22. The Iraqi pilot, 1st Lieutenant Sarhan Abdullah Hamid Amer al-Fadhawi ejected safely and was captured. With the remaining IrAF fighter-bombers giving up, this caravan operation was successfully concluded at 15.45hrs.

At 10.00hrs on 22 December 1983, the IRIN launched its next convoy operation. Conducted under the codename Sardab, it saw a column of 20 vessels moving from the Bushehr anchorage in the direction of BIK and Mahshahr. This time, the Iraqis reacted in an entirely unusual fashion. At first, around 11.20hrs their HY-2 Silkworm sites at Ras al-Bisheh fired at least one missile, but this crashed harmlessly into the sea. What was so unusual was what happened at 11.28hrs, when Iranian radars detected a formation of four MiG-23MFs, followed by two Mirage F.1EQs, with four Su-22s trailing. For the first time ever, the IrAF sent a relatively large strike package to hit one of the convoys, and thus also openly challenge IRIAF F-14s flying top cover. Led by Lieutenant Colonel Hashem All-e-Agha – who not only earned himself the reputation of the top Iranian air warfare tactician, but also that of an officer constantly emphasising the need to conserve the available resources of the IRIAF (and that it was better to 'just scare the Iraqis away' instead of actually shooting them down) – the pair of Tomcats also reacted in an unexpected fashion. All-e-Agha held back from firing any AIM-54s: instead, when approaching to about 8nm (14.8km) from the enemy formation, he and his wingman flew the so-called 'Polish Heart' manoeuvre: they split in opposite directions, before making a turn around to rejoin behind the leading Iraqi formation. At 11.32hrs, the two F-14s rolled out behind the MiG-23MFs, and each fired a single AIM-9J Sidewinder: at least one of these found its mark, causing an Iraqi jet to crash into the sea at the coordinates 30° 00' N and 049° 13' E. The other three MiGs turned around and fired at least one missile in return, but then continued straight back to Iraq, while the two Mirages did not try to engage: by this time, their task was complete because they had managed to deliver the Sukhois to their target. Indeed, the first Su-22 dived to attack with unguided rockets and hit the bridge of the Cypriot freighter *Breeze*, loaded with sugar. The hits killed all the bridge team, including the skipper and the PMO pilot Khosrow Jafar-Nia: however, the ship remained operational and was guided to BIK by an escorting tugboat. At that moment, ZU-23 anti-aircraft guns on several ships opened fire, prompting the remaining three Iraqi Su-22 pilots to abort their attacks and withdraw towards the north. However, as soon as the two F-14s retreated for in-flight refuelling from a tanker, Iraqi Unit 128 signalled to Wahda AB that the 'air is free', and the Iraqis scrambled another strike package. This hit the last few ships of the convoy as these were about to enter the Khowr al-Moussa Channel. One of them managed to damage the machinery of the merchant *Hayden* as it was passing Buoy No. 10: the vessel had to be towed to BIK by a tugboat.



1st Lieutenant Sarhan Abdullah Hamid Amer al-Fadhawi, the Su-22 pilot shot down by Iranian F-14As during an attack on an IRIN caravan, south of the Khowr al-Moussa Channel, on 8 December 1983. Presently, it is unclear if he served with No. 5 Squadron, or with No. 109 Squadron. Indeed, it is possible that he flew with the former, early during the war with Iran, but was then reassigned to the latter, once it was re-equipped with Su-22M-3s in early 1983. (Ali Altobchi Collection)

PMO pilot Captain Khosrow Jafar-Nia, killed during the IrAF strike on the Cypriot freighter *Breeze* on 22 December 1983. Originally, he served with the PMO Department of Anazali Port, on the Caspian Sea. When PMO pilots went on strike in 1981, he was one of the pilots to volunteer for duty in the northern Persian Gulf. (PMO)

Silkworms and MiGs

Through late December 1983, Iraqi Units 114 and 128 collected enough intelligence to warn both the navy and air force about the next Iranian convoy. The Iranian intentions became even more obvious when early on 1 January 1984, the IRIAF deployed four F-4Es from TFB.6 to bomb the two HY-2 Silkworm sites at Ras al-Bisheh. These were constructed about six kilometres from each other, and well-fortified. Led by Major Kazem Abbas Nejadi, the formation delivered a near-perfect low-altitude attack, each aircraft releasing six Mk.82 bombs with Mk.12 Snakeye retarding fins. Post-strike reconnaissance by a single RF-4E resulted in the conclusion that one site was completely destroyed, while the other was damaged. Nevertheless, the new commander of the Iranian air force, Houshang Seddiq – a former F-5E pilot and member of the Taj Talee aerobatic team, and an officer with reputation of being particularly aggressive – then publicly announced that both sites were knocked out and might be non-operational 'for months.'[17]

Undeterred, late in the evening of 1 January 1984, Super Frelons of No. 101 Squadron of the Iraqi Navy were sent to mine the southern entrance to the Khowr al-Moussa. However, their take-off was detected by the Iranians and the appearance of an F-4E from TFB.6 proved sufficient to send the Iraqi helicopters back to base without deploying any mines at all.

Starting at dawn of the following morning, a pair of MiG-23MF interceptors took station at an altitude of 20,000 feet above al-Faw, while a pair of Su-22 fighter-bombers circled the same town at an altitude of 3,000ft. The jets were continuously replaced by new aircraft, as soon as the earlier pair ran out of fuel. Of course, the Iraqi jets were picked up by Iranian radars: although knowing that the enemy was waiting, TF.421 had no option but to initiate its operation. Around 08.30hrs on 2 January 1984, the convoy codenamed Sa'I began raising its anchors from the Bushehr anchorage, and organising itself into a column. Guarded by a pair of F-14As, the convoy headed in a north-western direction, without prompting a reaction from the Iraqi fighters. Instead, and once again, it fell to the 'destroyed' navy Silkworm sites to open the battle. At 09.50hrs, the first missile was launched at the caravan. As it approached the target, Sahand operators from at least two ships opened fire and one of their SA-7s hit the HY-2, causing it to explode before crashing into the sea. At that point in time, the two MiG-23MFs orbiting over al-Faw went into action and attempted to attack the F-14s: well before the Iraqis could bring their R-23R medium-range air-to-air missiles to bear, the lead Tomcat (callsign Khyber-Alpha) fired a single AIM-54A, shooting the enemy leader down, and prompting to wingman to withdraw in a north-western direction.

Minutes later, the Iraqi HY-2 sites recommenced action by firing two additional Silkworms. This time, both were well-aimed: one hit the freighter *Iran Emamat*, stopping it on the spot, while the other caused light damage to *Iran Salam*. While the latter managed to continue its voyage to BIK, the work on extinguishing the fire and making *Iran Emamat* mobile again was interrupted when at 10.40hrs a formation of Su-22s approached from the north. Although the Tomcats quickly forced the Iraqi bombers to withdraw, the damage was done: minutes later, the Iraqi Navy fired another HY-2 and this hit *Iran Emamat* again, causing additional damage. The ship was eventually gutted by fire, had to be abandoned and left to sink.

Malekzadeh's Spoiled Ambush

Understanding that Iraqi intelligence was meanwhile excelling at gathering enough information to precisely predict the movement of the next caravan, in late January 1984 the new commander of TF.421, Captain Ghahreman Malekzadeh, attempted to set a trap for the enemy. The idea was for warships to mimic 'poorly defended civilian ships' and thus entice Iraqi Sukhois to attack them, and thus fly within the range of well-defended warships. This operation began early in the morning of 31 January 1984, with Iranian warships broadcasting fake radio messages, simulating the movement of a convoy from the Bushehr anchorage towards the north.

As usual, a pair each of Iraqi MiG-23MFs and Su-22s took up their stations over al-Faw, waiting for the order to attack in the southern direction. However, Malekzadeh had failed to inform TFB.6 about his 'virtual caravan' and thus, once the Bushehr radar began picking Iraqi fighters, a single F-4E was scrambled to intercept. Crewed by Captain Akbar Montaseri and 1st Lieutenant Gholam Ali Rezai-Khosravi, the Phantom (callsign Zulfiqar 61) thundered straight into a pair of MiG-23MFs: the crew sighted the two enemy jets from a range of seven miles but was slow in deploying its AIM-7E2 Sparrow medium-range air-to-air missiles, and was then confused by ground control, which ordered it to turn around. Seconds later, the F-4E was hit by two R-23R missiles and the crew forced to eject at coordinates 29° 42' N and 049° 00' E. Montaseri and Rezai-Khosravi were recovered by an IRINA helicopter, about an hour later and bought back to a hospital in Bushehr.

Indeed, this was not to remain Malekzadeh's only mistake. Over the following weeks he was to prove as poorly-skilled in regards of planning and conducting convoy operations as in regards of communicating with subordinates, or asking for advice. This is why this energetic officer, eager to assume and maintain the initiative, was not only to cause this loss of a fighter jet of the air force, but many other problems.

Early on 2 January 1984, while underway with a northbound caravan, the freighter *Iran Salam* took light damage from a near miss by an HY-2 anti-ship missile. (IRISL)

Claims and Counterclaims

The next real caravan started at 09.00hrs on 1 February 1984. It included 10 ships in the northbound convoy, and 13 ships in the southbound convoy. The usual version of what happened next was provided by the Iraqis, Western specialist publications and US intelligence services. Baghdad subsequently boasted about 'destruction' of no fewer than eight ships; Western sources announced that at least three ships were hit by Exocets, while the US intelligence reported that the Iraqis deployed at least four, possibly six Super Frelons and fired at least as many Exocets. Above all: nobody mentioned the involvement of the IrAF.[18]

On the contrary, the Iranian documentation leaves no doubt about the fact that this was a very important convoy. The reason was that it carried material necessary for Operation Khyber, a major offensive of the Iranian ground forces into Iraq, which was to be launched two weeks later. Correspondingly, this convoy received heavy protection from F-4Es and F-14As, two tanker aircraft, one (R)C-130H *Khoofash*, and the IRINA deployed one of its Fokker F.27 Friendship transports to serve as a radio relay for communications between its own helicopter pilots, and IRIAF crews. Nevertheless, the demonstrative manoeuvring of Iraqi MiG-23MFs and Mirages distracted the F-14 crews so much, that later during the morning at least two Iraqi Su-22s managed to get through. One hit – and badly damaged – the Cypriot freighter *Skaros* from the northbound convoy (where five crewmembers were wounded), while another lightly damaged the merchant *Neptune* from the southbound convoy. Finally, the freighter *City of Rio* then hit an Iraqi mine. Escorting tugboats promptly reacted, and towed all three ships back to Bushehr. However, *City of Rio* was subsequently declared CTL.

The eighteenth convoy operation of the IRIN in the Persian calendar year 1362, was initiated at 08.00hrs on 16 February 1984. It included 11 ships in the northbound caravan, and 11 in the southbound caravan, and was conducted under the codename Negmeh. Once again, both the IrAF and the IRIAF were present in force and the first air combat took place at 09.35hrs when an F-14A (callsign 'Khyber 1') shot down a MiG-23MF at the coordinates 29° 10' N and 049° 55' E. The Iraqi Navy joined the brawl by firing HY-2 anti-ship missiles at 09.38, 09.47, and 10.16hrs: the first hit the freighter *Al Tariq*, the second crashed harmlessly into the sea, while the third blew up a 65-foot patrol boat killing all six of its crew. Later on, the merchants *Good Dolphin* and *Iran Jomhouri* hit mines in quick succession. With the Iranian ground forces depending on ammunition and supplies carried by this convoy, salvage parties and tugboats of the IRIN scrambled to extinguish all the resulting fires and tow the damaged vessels to BIK, all the while protected by Tomcats of the IRIAF: they flew a total of 13 combat sorties that day – some lasting as many as 10 hours.[19]

Pending the passage of another IRIN convoy, on 29 February 1984 No. 87 Squadron IrAF launched the first reconnaissance operation over Khark and Bushehr since its former commander was shot down in July of the previous year. Like before, the IRIAF radar station in Bushehr detected the MiG-25R as it was passing high over Basra, accelerating to Mach 2.8 and climbing to an altitude of 70,000ft (21,336m) for the photo-run. By sheer luck, an F-14A with enough fuel was on the Daylan CAP station and its pilot, Gholam-Reza Moradi, managed to repeat Rostami's feat: he climbed to an altitude of 35,000ft (10,668ft) while accelerating to Mach 1.4 in time to launch an AIM-54A from the range of 25nm (46km). However, for unknown reasons, the Phoenix missed and the Foxbat came away.[20]

The Iranian navy initiated a caravan from the Bushehr anchorage at 08.00hrs on 1 March 1984 – about half an hour later than the southbound convoy from BIK. Both columns entered the 'danger zone' at 09.00hrs, and just 13 minutes later the first air combat erupted as two F-14As (callsigns 'Shahin 72' and 'Shahin 73') forced the escorting MiG-23MFs away before shooting down one of the Su-22s. While this threat was thus away, at 09.40hrs, the Iraqi Navy joined the fray by firing two HY-2s: one hit the Indian freighter *A. P. J. Ambika*, while the other slammed into the bridge of the Turkish *Sema G*, killing two and wounding eight of the crew. *A. P. J Ambika* had to be towed by IRIN tugboats to BIK, but *Sema G* continued at its own power: nevertheless, the latter was subsequently declared CTL. Because this was one of the bigger convoy operations, the action went on and at 12.05hrs, another HY-2 hit the *Iran Eslami*, killing three of the crew. The tugboats of the IRIN and the PMO immediately commenced firefighting operations, but then – and despite the presence of at least two F-14As over the convoy – two Super Frelons launched two AM.39 Exocets, one of which hit the freighter *Tarigh Al Qods*: this ship managed to get out of the danger zone on its own though.

Owned by the IRISL, the Iranian bulk carrier *Iran Eslami* was one of several ships hit by Iraqi HY-2s on 1 March 1984. Despite the loss of three crewmembers, it survived and was repaired. (PMO)

SH Down

Pending the voyage of the next caravan, early on 29 March 1984, Deputy Operations IRIAF, Colonel Abbas Baba'ie and the commander of the IRINA, Commander Nabipour, ordered the transfer of three ASH-3Ds (colloquially 'SH' in the parlance of the Iranian naval aviation) and one AB.212ASW of the navy, as well as

Two clips from a video taken from a Boeing 707-3J9C tanker of the IRIAF during the war, and showing an F-14A (armed with two AIM-9J Sidewinders and a single AIM-54A Phoenix) turning away after receiving fuel. (Tom Cooper Collection) two AH-1J Cobras of the IRIAA to the Booneh FOB. Simultaneously, three other Sea King helicopters deployed to the Nowruz and Ardeshir platforms. Indeed, dissatisfied by the inconsistency of the support provided by TFB.6 and the local IRIAF radar site, Baba'ie decided to travel in one of the helicopters, together with the forward air controller of the air force. Moreover, a single Dassault Falcon business jet of the IRIAF was airborne over Bushehr to act as a radio relay. After refuelling at Booneh FOB, two ASH-3Ds – one piloted by Captain Nik Payam, the other by Captain Nabipour – and one AH-1J took off again and flew north, along the dredged canal to BIK, with the task of deploying chaff over Khowr al-Moussa. Chaff is a radar countermeasure involving the dispersal of thin strips of aluminium in order to blind or disrupt radar systems: in this case, it was not only meant to disrupt radars on the al-Faw Peninsula and at Mina al-Bakr, but also those in the seeker-heads of Iraqi AM.39 Exocet and HY-2 missiles.

Soon after taking off, the three crews experienced very bad weather: low clouds covering the entire area forced them to fly directly above the sea surface. Moreover, the Bushehr radar then informed them about the presence of two MiG-23s and two Mirages, about 30 nautical miles (56km) away, and a Super Frelon over the al-Faw Peninsula, and that because of weather conditions, they could not expect any kind of air cover from the IRIAF. Understanding the importance of their task, the three crews agreed to carry on: equipped with better navigational systems, the two ASH-3Ds flew ahead, with the AH-1J behind them, and climbed to an altitude of 500ft (152m), before starting to deploy chaff while flying through the clouds.

Their mission worked better than expected: only minutes later an Iraqi anti-ship missile exploded close behind Captain Payam's helicopter, blowing off the hatch door between the cockpit and the cargo area. A quick inspection of the helicopter revealed no further damage and the trio went on to land on a barge in the port of BIK, where the door was reinstalled into its position. As the crews were taking a break, they were informed that a ship in the convoy had been hit: Captain Nabipour promptly jumped into his ASH-3D and took off towards the site of attack. Once underway, because of his low altitude and distance, Nabipour was not able to communicate directly with the radar station in Bushehr. Therefore, he called Payam to do that for him. In turn, via the Falcon 20 that served as radio relay, Bushehr informed them that the helicopter should leave the area immediately because Iraqi interceptors were nearby. Payam promptly forwarded the warning to Nabipour, but the latter continued the mission, intending to aid the damaged merchant vessel. Minutes after, all contact with the lone Sea King helicopter was lost. Alerted, Payam took off in his ASH-3D and began a search and rescue operation. Although flying in near-zero visibility, through low clouds and rain, eventually he found Nabipour's co-pilot, Khosravi, but could not pick him up from the water because his cargo winch jammed: instead, Payam landed on the water surface and one of his crewmen helped the downed airman climb into the helicopter. Shortly after, a third ASH-3D picked up another crewman from the downed helicopter: both survivors were flown out to BIK and then, because both were injured, they were quickly forwarded by ambulance car to Omidiyeh AB, and from there flown out by another Falcon jet to Tehran.[21]

First Super Etendard Strike

Meanwhile, in late February 1984, a dramatic development occurred further south. For full understanding of the affair in question, it is important to return back to the times when the Iraqis and the French were negotiating the above-mentioned Contract Baz-3. On three occasions through 1982, Saddam Hussein issued public warnings to the owners of foreign ships underway in the Persian Gulf to keep away from Khark: all his threats proved ineffective and there was no reduction in the traffic. With the 224th Missile Brigade then failing to hit the island with Scuds, and No. 101 Squadron's stock of Exocets decreasing to only 15, in October 1982 Saddam sent a delegation of top officials to Paris with a request for the delivery of 20 Dassault Super Etendard fighter-bombers. At the time, the type was famed for its performance in the Falklands War, and the Iraqi strongman expected it to enable the IrAF to attack targets in the Khark area. Initially hesitant, the French government eventually agreed to help. However, there were two major obstacles in the way:

- A) due to interruption of its oil exports and high costs of the war, Baghdad was effectively bankrupt; moreover,

The exact identity of the ASH-3D shot down by Iraqi interceptors on 29 March 1984 remains unknown, but three are known to have been written off during the war: 8-2304, 8-2305 and 8-2314. This photograph shows serial number 8-2316 with its crew at NAS Bushehr in the mid-1980s. (Sirous Ebrahimi Collection)

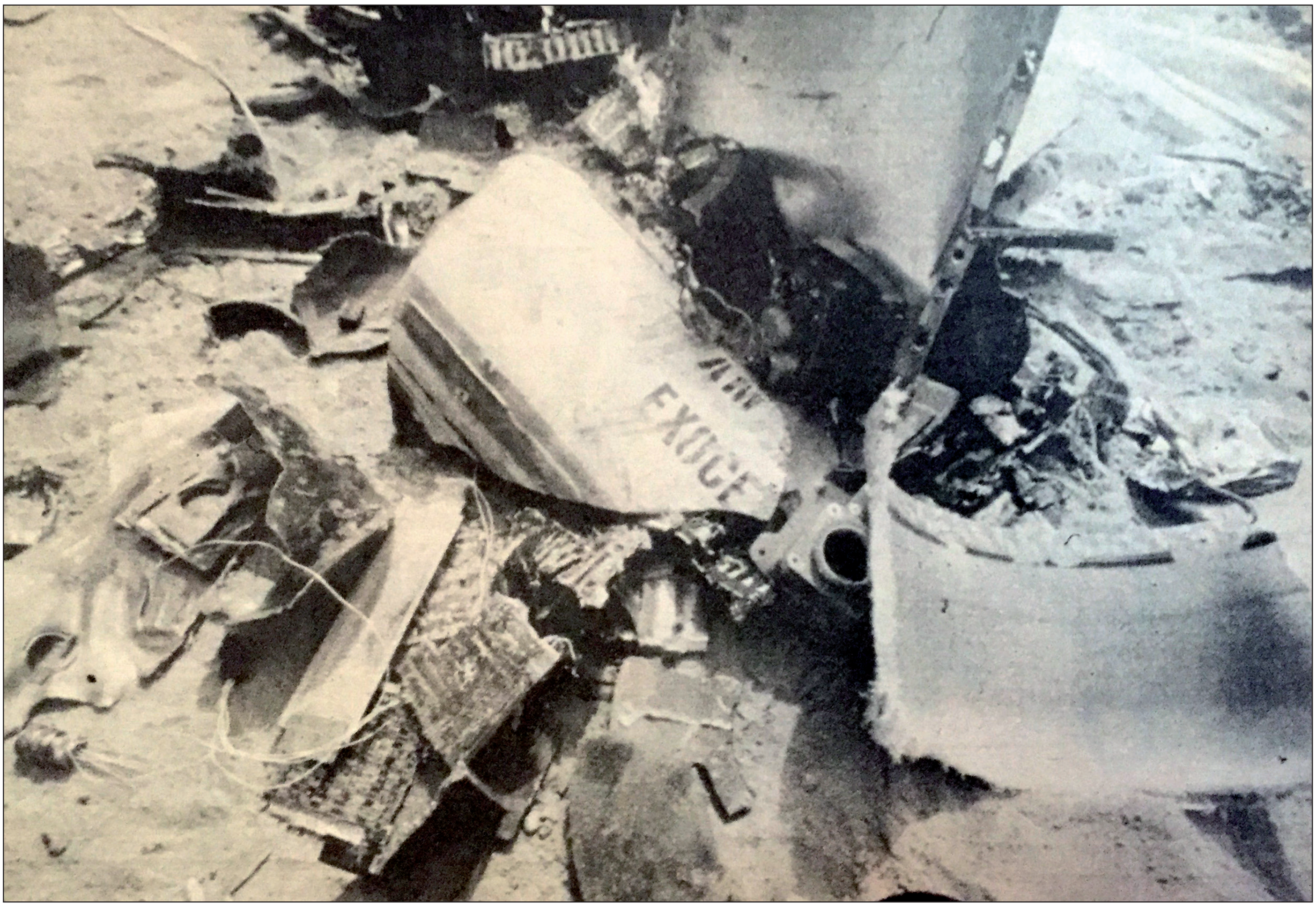
- B) the production line for Super Etendards was now closed, and Dassault not in a position to manufacture any more.

Instead, the company offered to create a sub-version of the Mirage F.1EQ-5 – which was undergoing development for Iraq – capable of carrying two Exocets (an idea that eventually led to the sub-variant Mirage F.1EQ-6). While the Iraqis accepted this proposal, they remained stubborn about the requirement for Super Etendards: they needed a solution on the spot, without any delays. Eventually, the managers of Dassault came up with the idea of Paris 'discretely renting' some Super Etendards to Iraq. The leadership of the Aéronavale – the French Naval Aviation – fiercely opposed the idea, to no small degree because the type was equipped for delivery of nuclear weapons. However, on 26 May 1983, President Francois Mitterrand eventually made the decision that the Aéronavale would provide five Super Etendards for Iraq, whose government in turn had the right to do with them whatever it wanted. Only a week later, six Iraqi pilots and 30 technicians drawn from Nos. 79, 89 and 91 Squadrons arrived in France to start conversion training on the type. They completed their conversion courses in September 1983 and then the aircraft were flown by French pilots to Iraq under Operation Sugar.

Following additional preparations, the IrAF flight operating Super Etendards was worked up and declared ready for operations in early 1984. By that time, not only had Iran's oil exports reached their highest levels since the revolution of 1978–1979, but in February the Iranian ground forces carried out the above-mentioned Operation Khyber. In the course of that offensive, they took the Iraqis by surprise while crossing the Howeizeh marshes and almost cutting off the land connection between Baghdad and Basra: it took the Iraqis weeks of bitter and costly counterattacks to push them back. Therefore, 10 days into the Iranian offensive, on 26 February 1984, Saddam ordered Sha'ban to send the Super Etendards into action – this time with the intention of not only disrupting, but cutting off Iran's oil exports. However, and strangely enough, Sha'ban then sent his pilots to attack the port of Bushehr instead. In an interview with Brigadier General Ahmad Sadik al-Astrabadi, one of the pilots involved recalled:

> On 26 February 1984, we received an order to arm two of our aircraft with two AM.39 Exocet missiles. Later that day, me and a fellow pilot ferried to Jalibah FOB. Strict security was in place, and we were separated from several MiG-21 pilots from No. 11 Squadron based there. At 22.00hrs, we finally took off heading south before turning directly towards the Iranian port of Bushehr. At 22.45hrs, we fired our first missiles in anger ever – against ships detected inside the port. We both saw flames rising from our targets. The next day, the Iraqi newspaper headlines read, "Iraq strikes using the Super Etendard." Lloyds of London later confirmed that Iraq had attacked ships inside Bushehr harbour.[22]

In comparison, the Iranian documentation contains no mention of any Iraqi attacks on 26 February. It very much does so about an attack on the following day, however, though hours earlier than recalled by the Iraqi pilot. Correspondingly, at 17.20hrs on 27 February 1984, the IRIAF radar station in Bushehr detected two unknown aircraft approaching Khark from a western direction at an altitude of 5,000ft (1,524m) and speed of 800 knots (1,480km/h).



Pieces of the AM.39 Exocet found outside the IRIAF radar station in Bushehr, on 27 February 1984. (IRIAF)

The Fighter Control Officer was called to see the situation on the scope, and provide his assessment: he promptly concluded that this must be Iraqi aircraft underway to strike one of the offshore platforms. The Tomcat standing alert at TFB.6 failed to take-off due to a technical issue. However, minutes before another F-14A – callsign 'Khyber 75', crewed by Lieutenant Colonel Shahram Rostami and Colonel Abbas Babaie – took off: the aircraft was defective and unarmed, and the crew was ordered to fly it to Esfahan for repairs. Nevertheless, the ground control advised them about the approach of two Iraqi fighters. After discussing the situation with Babaie, Rostami decided to turn into the threat and shortly after Babaie reported having detected the enemy with the AWG-9 from a range of 40nm (74km). As the range decreased to about 12nm (22km), the crew of the F-14A switched their AWG-9 radar from the track-while-scan (TWS) mode into the pulse-Doppler Single Target Track (PDSTT) mode. The reason was that Rostami knew that while the AWG-9's emissions in TWS mode were unlikely to cause the radar warning receiver installed on the Iraqi fighters to warn their pilots, emissions in the PDSTT mode were certain to do so. Indeed, only seconds later, around 17.30hrs, both Iraqi jets made a hard break and distanced in a north-western direction. To the crew of the F-14, the situation appeared as that of 'mission accomplished' – and without a single shot being fired. However, minutes later, the freighter *Iran Borhan*, anchored in the port of Bushehr and waiting for its turn to travel with the next caravan to BIK, was hit by an Exocet missile. Another AM.39 then crashed to the ground only 100 metres away from the IRIAF radar station in Bushehr. Following inspection of the damage to *Iran Borhan*, and after finding the wreckage of the second missile, the Iranian conclusion was beyond any doubt: the Iraqis had deployed their Super Etendards in combat of the first time.

With this, Iraq initiated an entirely new aspect and phase of the war with Iran. Indeed, one that would come to be known as the 'Tanker War', and one that was to internationalise this conflict well beyond the imagination of most of its participants. That part of the story is going to be told in Volume 3.

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NOTES

Introduction

1 The name of the negotiator and all details about his family are withheld for reasons related to their personal security. The French company in question is mentioned in this book but not explicitly cited within the context of this affair in order to avoid possible legal issues.

2 See Middle East@War No.49, *Al-Hussein*.

Chapter 1

1 Nadimi, p. 117 & CIA, *Khark Island: Iran's Principal Oil-Export Terminal*, June 1984, CIA Freedom of Information Act, Electronic Reading Room (CIA/FOIA/ERR). Notable is that the 170km-long trunkline connecting Agha Jari with Genaveh – consisting of two pipelines – had a throughput capacity of 2.7 million barrels a day, without pumping.

2 Nadimi, p. 118. Notably, after four storage tanks were severely damaged by Iraqi air strikes early during the war, the remaining tanks still had a combined capacity of 19 million barrels as of early 1984 (or about two weeks of storage at contemporary export rates). Even then, the Iranian oil exports during the war never surpassed a maximum of about 2.5 million bpd, which means that claims in various French and Iraqi publications about the damage caused to Khark during the war decreasing its daily output, for example, 'from six to less than one million bpd' belong within the realms of fantasy.

3 Technically, most of the platforms in question were 'gas and oil separation plants'. Usually abbreviated as GOSP, these facilities separate wellhead fluids into constituent vapor (gas) and liquid (oil and produced water).

4 Nadimi, p. 21.

5 For details on one clandestine operation including the transfer of spare parts from Israel to Iran, see Marón, *Juliet, Tango, November* (details in Bibliography).

6 The designation 421 came from the fact that the personnel for this headquarters were drawn from all the four naval zones of the IRIN, including Bushehr (Naval Zone 2) and Bandar-e Abbas (Naval Zone 1).

7 For additional details on Project IBEX, see Bob Woodward, 'IBEX: Deadly Symbol of US Arms Sales Problems', *The Washington Post*, 1 January 1977.

8 Centre for Strategic Studies, *History of Air Battles*, Vol. 6, pp. 305–306. While they are not explicitly mentioned, a cross-examination of related IRIAF documentation resulted in a conclusion that 'Ghamar', 'Hetal' and 'Taer' were reconnaissance variants of MiG-21, MiG-25 and Mirage F.1EQ. However, it remains unclear which was used for each of the Iraqi-operated jets.

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12 Captain Madani Nejad, TF.421, IRIN, 'The Situation of Commercial Ships in the Bandar-e Khomeini and Bandar-e Abbas', 24 September 1980, Document No. 421/030930, *Calendar of the History of Holy Defence Navy, Vol. 1.*

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14 IRIN, 'Foreign Tankers', 14 February 1981, Document No. 591125010-1, SDDCN.

15 IRIN, 'Foreign Tankers', 14 February 1981, Document No. 591125010-1, SDDCN.

16 Captain Razmjoo, IRIN, 'Escort Order', 28 January 1981, Document No. 591108137-1, SDDCN.

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19 HQ 1st Naval Region, IRIN, 'Air Support: Requesting 15 Minutes Readiness,' 28 April 1981, SDDCN.

20 For details on the Iraqi air strikes that opened the invasion of Iran, on 22 September 1980, see Sipos et al, *Wings of Iraq, Volume 2* (details in Bibliography).

21 Because currently available Iraqi sources only record the names of downed pilots, but never their target, there is still some uncertainty about the actual target of that air strike. Sadik (10/2007), recalled a strike on the port of BIK. Using the NIOC documentation, Nadimi (pp. 85–86) concluded the Sukhois were underway to attack oil rigs in the Dorud oilfield.

22 Centre for Strategic Studies, *History of Air Battles*, Vol. 10, pp. 9–12.

23 IRIN, 30 August 1981, Document No. 600904044, SDDCN.

24 IRIN, 30 July 1981, Document No. 600508114, SDDCN.

25 IRIN, numerous communications through May–September 1981, including Documents No. 600904145 through 601011091, SDDCN.

26 IRIN, 30 July 1981, Document No. 600904044, SDDCN.

27 IRIN, 14 April 1981, Document No. 600125066 & IRIN, 21 April 1981, Document No. 600131029, both in SDDCN. One unofficial Iraqi source claims that Mardani's F-14A was shot down by Captain Abdul Mohsen Sebti, a MiG-21MF pilot from No. 11 Squadron. Notably, for this operation, Sebti and his wingman were scrambled from Wahda AB. Furthermore, according to official IRIAF documentation, this service alone suffered the loss of 88 pilots and other crewmembers killed in action, 80 wounded in action and 20 captured by Iraq in the period September 1980 – January 1981.

28 IRIN 27 April 1981; Document No. 600207079, SDDCN. Notably, the crew of *Falakhon* recovered from the sea all four empty drop tanks released by the Iraqis.

Chapter 2

1 Sadik, interview, 03/2005.

2 For details on French and Soviet arms embargoes of 1980–1981, see Cooper et al, *Iraqi Mirages*.

3 For details on the build-up, training and equipment of the Directorate of Technical Equipment, see Cooper et al, *Iraqi Mirages*.

4 Sadik, interview, 10/2007, Fukuyama, pp. 59–62, 72; Schmidt, *Global Arms Exports to Iraq, 1960–1990*, pp. 53; DIA, *Electronic Warfare Forces Study: Iraq*, 9 August 1990, CIA/FOIA/ERR As far as is known, and amongst other items, Unit 128 was equipped with Post-2MK and Post-3M (ASCC/NATO-codename 'Swing Box') ELINT systems, capable of detecting the emissions of such airborne radars as the AWG-9 of Iranian F-14s. Acquired as part of a major Iraqi order issued in September 1978, these were delivered in 1981, and arrived together with SPB-7 and SPO-8 ground-based air defence jammers (ASCC/NATO-codename 'Tub Brick' and 'King Pin', respectively), designed to disrupt the work of such radars.

5 IRIN, 'Investigation into Reasons for Losses of *Louise*, *Iran Vahdat*, *Iran Ehsan*, and *Al Tajdar*', 7 September 1981, Document No. 60042205 and IRIN, '3rd Naval Region to TF.421', 15 September 1981, Document No. 600422053, both in SDDCN. The investigation in question seems to have been supported by evidence collected by the FASHA SIGINT-gathering site at Omidiyeh Air Base.

6 IRIN, 4 July 1981, Document No. 600412028, SDDCN

7 IRIN, 4 July 1981, Document No. 600412029, SDDCN

8 IRIN, 4 July 1981, Document No. 600412030, SDDCN

9 IRIN, 5 July 1981, Document No. 600420034, SDDCN

10 Indeed, it was only in the late 2010s that the hulk of IRIS *Milanian* was removed from Dock 6 of the T-Jetty. Notably, in February 1983, a major affair erupted over the circumstances of this loss, when the contemporary commander of the IRIN, Captain Bahram Afzali was arrested. According to Judge Ayatollah Khalkhali – a notorious

prosecutor of the Revolutionary Court who had sentenced to death most of the high-ranking officers of the Iranian armed forces since Khomeini's take-over in February 1979 – in his book *Days of Isolation: Memoirs of Ayatollah Khalkhali, from the Days of Studentship to the Rule of Sharia in the Courts of the Islamic Revolution* (in Farsi) (Tehran, 2002):

> Afzali was very afraid of Khomeini being informed about the loss and requested me not to do so. He begged me to keep the loss secret, promising he would take care to salvage and repair the ship. Nevertheless, I informed Khomeini and told him that the ship was lost together with all equipment and ammunition. Khomeini became very upset and from then on suspected the commander of the Navy. In 1983, Rayshahri – another judge of the Revolutionary Court – then had Afzali arrested for treason and issued the order for him to be executed.

In the course of the same investigation, Rayshahri ordered the arrest of 20 other IRIN personnel: nine officers were court martialled and executed by firing squad because they were declared as members of the Iranian Communist Party (Tudeh). Four others were sentenced to life in prison. In turn, and in combination with another – much smaller – mutiny on another IRIN warship, this process created a myth according to which there was a mutiny on board IRIS *Milanian*, and the mutineers had sabotaged the steering resulting in the vessel striking an off-shore platform 'north-west of Khark', after which she was abandoned.

11 Unless stated otherwise, based on Centre for Strategic Studies, *History of Air Battles*, Vol. 10, pp. 9–12.
12 IRIN, 16 September 1981, Document No. 600729014, SDDCN.
13 Sadik, 10/2007. For additional details on operations in question, see Cooper et al, *Iraqi Mirages*.
14 For details on Iraqi-Soviet relations in the late 1970s and early 1980s, the Soviet repeated refusal to deliver the 'best' in terms of aircraft and weaponry, and the Iraqi disappointment, see Sipos et al, *Wings of Iraq*, Volume 2. Notably, Sadik (interviews, 03/2005 & 03/2006), recalled '84' as the designation of the first MiG-25 unit, causing some confusion with the subsequently established No. 84 Squadron, which operated Messerschmitt-Bölkow-Böhm MBB.105 helicopters, and No. 87 Squadron, which was the first IrAF unit officially declared operational on MiG-25s in 1981.
15 Sadik, interview, 03/2005 & IRIN, 10 September 1981, Document No. 600618089, SDDCN.
16 IRIN, 10 September 1981, Document No. 600618036, SDDCN.
17 IRIN, 10 September 1981, Document No. 600619004 & 600619006, SDDCN
18 IRIN, 2 October 1981, Documents No. 600715167 & 600720025, SDDCN. Notably, according to IRIN, Document No. 60080240, from 3 October 1981, *Moira* burned so fiercely, that the three tugboats could not move it anymore: the ship sank inside the Khowr al-Moussa channel, forcing the PMO to dredge a detour around its wreck.
19 IRIN, 20 October 1981, Documents No. 600727055 and 600728024, SDDCN.
20 IRIN, 23 October 1981, Document No. 601001003, SDDCN.
21 IRIN, 23 October 1981, Document No. 600802040, SDDCN.
22 Nadimi, p. 88 and various IRIN reports for late October 1981, SDDCN.
23 IRIN, 23 October 1981, Document No. 601001003, SDDCN.
24 JCS, 'Possible Large—Scale Offensive in Khuzestan', 23 October 1981, in IRIN, Document No. 60081001, SDDCN.
25 Sadik, interview, 03/2005 & Centre for Strategic Studies, *History of Air Battles*, Vol. 10, pp. 160–167. Additional details from Keyvan V (IIAF/IRIAF researcher), 09/2015 & Javad A. (IIAF/IRIAF researcher), 01/2017.
26 Centre for Strategic Studies, *History of Air Battles*, Vol. 10, pp. 168–169; Keyvan V (IIAF/IRIAF researcher), 09/2015 & Javad A. (IIAF/IRIAF researcher), 01/2017.
27 Centre for Strategic Studies, *History of Air Battles*, Vol. 11, p. 125 & Javad A., interview, 01/2017. While Sadik confirmed one MiG-23 as shot down on 25 November, he credited it to an IRIAF F-4E. The IRIAF credited an F-14 pilot, Captain Gholam-Reza Khorshidi with a 'Mirage-kill' scored by one AIM-54A fired from a range of 35 kilometres.
28 Centre for Strategic Studies, *History of Air Battles*, Vol. 11, p. 125 & Sadik, interview, 03/2006. While many of the IRIAF claims in question remain unconfirmed, the Iranians are not known to have lost any F-4Es over Khuzestan on this day.
29 Sadik (interview, 03/2006) 'confirmed' the loss of only one Mirage, citing its pilot as Abdul Ghani as-Saoti – but stressed that he was shot down by an AIM-7 Sparrow fired from an F-4E. The Iranian media reported the downed Mirage pilot as Abdul Ghani Sayed ad-Dulaymi, while the IRIAF officially credited Captain Khorshidi with his 'second Mirage-kill' – once again scored by an AIM-54A, this time from a range of 16 kilometres. (Shakibania et al, *Tomcat Fights*). According to Centre for Strategic Studies, *History of Air Battles*, Vol. 11, p. 127, the captured Iraqi pilot, 'proved a valuable source on Iraqi Mirage operations'.
30 Sadik, 03/2005 & 05/2007.
31 Sadik, 03/2006; O'Ballance, p. 102 & Murray et al, p. 199 (the latter quoted the correspondence between the IrAF, the Air Defence Command, and the GMID regarding IRIAF capabilities, dated with 25 December 1981).
32 IRIN, 31 December 1981, Document No. 601010129, SDDCN.
33 IRIN, 11 January 1982, Documents No. 601021024, 601021045 and 601021032, SDDCN.
34 Navias et al, *Tanker Wars*, pp. 48–49.
35 IRIN, 11 January 1982, Documents No. 601021024, 601021045 and 601021032, SDDCN & Centre for Strategic Studies, *History of Air Battles*, Vol. 10, pp. 347–348.
36 Centre for Strategic Studies, *History of Air Battles*, Vol. 10, pp. 347–348.

Chapter 3

1 The complete list of caravans carried out in the Iranian year 1361 is based on the Centre for Strategic Studies, *History of Air Battles*, Volumes 11 and 12 and IRIN, *Calendar of the History of Holy Defence Navy*, Volumes 25–31. As far as necessary, other details are based on sources of reference mentioned in endnotes.
2 Nadimi, p. 22.
3 Nadimi, p. 120.
4 Additional details from IRIN, 1 April 1982, Document No. 610104027, SDDCN & *Calendar of the History of Holy Defence Navy*, Volume 25.
5 JCS, 'Enemy Attacks on Convoys of Commercial Ships', 28 April 1982, in IRIN, Document No. 3-610220067, 28 April 1982 & *Calendar of the History of Holy Defence Navy*, Volume 26, p. 341.
6 IRIN, 'Operation Tophan', 13 April 1982, Document No. 610104027 & Calendar of the History of Holy Defence Navy, Vol. 25, SDDCN. Notably: this was the first known occasion on which IRINA Sea King helicopters flew operational sorties while armed with AGM-65A Maverick electro-optically guided air-to-ground missiles. This modification is known to have been applied in early 1982 on two airframes: 8-2303 and 8-2310, each of which received one launch rail for Mavericks on either side of the forward fuselage. The first test-firing of an AGM-65A from an ASH-3D was a failure, but the problem was rectified with help from personnel from the Integrated Missile Workshops of TFB.8.
7 IRIN, 21 April 1982, Document No. 610129080, SDDCN.
8 IRIN, 1 June 1982, Document No. 610311064, SDDCN.
9 Metz, Iraq: *A Country Study*; O'Ballance, pp. 74–76 & pp. 108–109. In another paradox of the Iran-Iraq War, while nearly all of the interviewed Iraqi officers described the IRIAF's offensive on the Iraqi oil-exporting industry from the fall of 1980 as 'completely ineffective', and the Iranian aerial operations in general as 'incompetent' (indeed, Sadik once stressed that throughout eight years of war not one Iranian bomb had hit its target), in a press conference held in Baghdad on 4 March 1982, the Iraqi Deputy Oil Minister admitted publicly that, '…the Iranian military activity had caused considerable damage to Iraqi oil facilities, especially at Basra, but also at Kirkuk'. Sufficient to say that over 95 percent of related 'Iranian military activity' was undertaken by the IRIAF.
10 Sadik, interview, 03/2006 &; Jakowitsch, multiple interviews, 2000–2013.
11 Jakowitsch, multiple interviews, 2000–2013
12 Sadik, interview, 03/2006.
13 IRIN, 'Caravan of 06 June 1982', 6 June 1982, Document No. 610317055 & Calendar of the History of Holy Defence Navy, Vol.

27, p. 333, SDDCN. Notably, the passage of the same caravan is detailed in the *History of Air Battles of Holy Defence*, Vol. 11, pp. 327–328. However, close cross-examination of IRIAF and IRIN documentation has revealed that – generally – reports of the Iranian Navy were far more detailed and reliable, than those of the air force.

14 IRIN, 4 September 1982, Document No. 610613042, SDDCN.

15 *Calendar of the History of Holy Defence Navy*, Vol. 30, pp. 277–278, SDDCN.

16 Notably, the owners of *Evangelia S* claimed the ship hit an Iraqi mine on 11 September 1982.

17 Woods, p. 151.

18 Khafaji et al, p. 168.

19 DIA, 'Air Forces Intelligence Study: Iraq', DDB-1300-1Z-87, October 1987, CIA/FOIA/ERR. The report in question was almost certainly based on observations by Boeing E-3A Sentry airborne early warning and control aircraft of the ELF-11 detachment, US Air Force, deployed at Dhahran, in Saudi Arabia, from 1981 until 1989.

20 Unless stated otherwise, the following sub-chapter is based on IRIN 'Report of the TF.421 to the HQ IRIN on the Loss of Corvette Kahnamuie', 3 October 1982, Document No. 610710099, SDDCN.

21 IRIN, 2 October 1982, Documents No. 610710089, 610710090, 61071091 & 610710092, SDDCN.

22 IRIN, 2 October 1982, Documents No. 610710093, 61071094 & 610710096, SDDCN.

23 IRIN, 2 October 1982, Documents No. 610710095, 610710097 & 610710098, SDDCN.

24 IRIN, 5 October 1982, Document No. 610713170, SDDCN.

25 IRIN, 17 October 1982, Document No. 610726175, SDDCN.

26 CIA, 'Damaged Iranian Barracks Ship', Z-11815/82 NPIC/PEG (12/82).

27 Notably, on 9 July 1981, the Deputy Commander IRIN ordered the PMO to provide four tugboats and move IRIS *Shariati* to Bandar-e Abbas (IRIN, 9 July 1981, Document No. 600418027, SDDCN). When no tugboats appeared, he reissued an order with the same content on 23 November 1981, demanding that the redeployment take place on 11 December (IRIN, 23 November 1981, Document No. 600902127, SDDCN). By then, IRIS *Shariati* was just a burned-out hulk: nevertheless, two tugboats of the NIOC appeared. Although considered too weak to move the large vessel, they proved enough to redeploy it to the southern end of the Bushehr anchorage – before both were recalled to Khark to help berth a super tanker that arrived to load crude oil. The IRISL then offered to tow *Shariati* with the merchant *Iran Hemat* to Bandar-e Abbas. Of course, by then this would have been a pointless exercise and thus the wreck was left to sink where it was (IRIN, 15 December 1981, Document No. 600924087; SDDCN).

28 IRIN, 9 December 1982, Document No. 610918088, SDDCN.

29 Captain Abdul Karim Zairi, IRIN, 18 December 1982, Document No. 610918197, SDDCN.

30 Captain Abdul Karim Zairi, IRIN, 18 December 1982, Document No. 610918197, SDDCN.

31 IRIN, 18 December 1982, Document No. 610928019, SDDCN.

32 IRIN, 2 January 1983, Document No. 61020007; 9 January 1983, Document No. 6110200029; IRIN, *Calendar of the History of Holy Defence Navy*, Vol. 34, p. 289, both in SDDCN.

33 IRIN, 10 January 1983, Document No. 611022022, SDDCN.

34 IRIN, 10 January 1983, Document No. 611022099 & *Calendar of the History of Holy Defence Navy*, Vol. 34, p. 323, both in SDDCN.

35 IRIN, 8 January 1983, Document No. 611018133 & *Calendar of the History of Holy Defence Navy*, Vol. 34, p. 266, both in SDDCN.

36 IRIN, 14 January 1983, Document No. 611111082 & Calendar of the History of Holy Defence Navy, Vol. 35, p. 200, both in SDDCN.

37 IRIN, 13 January 1983, Document No. 6111118060, SDDCN.

38 IRIN, 9 February 1983, Document No. 611121124, SDDCN.

39 Sadik (interviews, 03/2005 & 10/2007) was insistent on British involvement. For comparison, the IRIN documentation – like Document No. 6111118060 mentioned above – is crystal clear that all the designs for missile decoys were of Iranian origin and there was no foreign involvement whatsoever.

40 Sadik, interview, 03/2005.

41 IRIN, 10 March 1983, Document No. 62010125 & *Calendar of the History of Holy Defence Navy*, Vol. 37, p. 21, both in SDDCN.

42 IRIN, 15 March 1983, Document No. 62101085, SDDCN.

Chapter 4

1 Unless stated otherwise, this chapter is based on IRIN, *Calendar of the History of Holy Defence Navy*, Volumes 37–40, and Centre for Strategic Studies, *History of Air Battles*, Vol. 13.

2 IRIN, 17 April 1983, Document No. 620129144, SDDCN.

3 IRIN, 17 April 1983, Document No. 620129144, SDDCN.

4 Khafaji et al, pp. 89–90.

5 Bob Woodward, 'Mystery Contract duplicates US Air Force Job in Iran', *The Washington Post*, 15 January 1977.

6 IRIN, 2 June 1983, Document No. 620314174, SDDCN.

7 IRIN, 15 August 1983, Document No. 620304100 & *Calendar of the History of Holy Defence Navy*, Vol. 39, p. 37, both in SDDCN. See also CIA, *Iraq/Iran Military Summary: Imagery analysis report*, October 1980, CIA/FOIA/ERR.

8 Sadik, interviews, 03/2005 & 03/2006.

9 Sadik, interviews, 03/2005 & 03/2006.

10 Shakibania et al, *Tomcat Fights* (TV documentary, Iran, 2012). In the years since this clash, several different dates were circulated both in Iran and Iraq. It was only once Shakibania's team managed to interview both Rostami and Rafiee, that the exact date was established.

11 Notably, only IRIAF-related publications are available about the caravans of 11 August 1983. Unlike those of the IRIN, these lack many details, primarily ship names.

12 Iran and India Shipping Company, Document No. 94/62F, 8 October 1983.

13 Murray et al, p. 200.

14 CIA, *Iraq's Air Force* & Woods, *Saddam's Generals*, pp. 208–209. Notable in the case of the latter source is the bitter critique expressed by Major General Abossi. According to him, Sha'ban was 'pretty weak' as a pilot, 'not effective' as C-in-C IrAF, and somebody who was 'not admired in the air force as much as al-Jabouri had been'. In comparison, Sadik considered Saddam's decision to return Hamid Sha'ban from retirement and appoint him the C-in-C IrAF for the 'crucial decision' of the war.

15 Sadik, 11/2007 & DIA, *Electronic Warfare Forces Study: Iraq* (henceforth *EWFS-Iraq*), p. iii, CIA/FOIA/ERR.

16 DIA, *EWFS-Iraq*, p. 21, CIA/FOIA/ERR.

17 'Interview with IRIAF Commander' (in Farsi), Jomhori-e-Islami, 3 January 1984.

18 Navias et al, p. 73; Nadimi, p. 117; CIA, 'Iraq-Iran: the War Moves into the Gulf', 17 May 1984, CIA/FOIA/ERR.

19 According to the recollections of several veteran IRIAF F-14 pilots and radar intercept officers, the Iranians had figured out that the maintainability of their Tomcats was significantly improving the more these were flown. This was why, starting in mid-1983, and for the next three years, the Iranian F-14 units tended to keep the same pair of jets on CAP station for eight or 10 hours, sometimes longer, instead of replacing them with a 'fresh' pair. The longest-known time on CAP by the same F-14A, was flown by Lieutenant Colonel Hashem All-e-Agha, and lasted 11.5 hours: it included three in-flight refuelling operations.

20 Keyvan V (IIAF/IRIAF researcher), 09/2015 & Javad A. (IIAF/IRIAF researcher), 01/2017.

21 Payam (IIAF/IRIAF researcher)

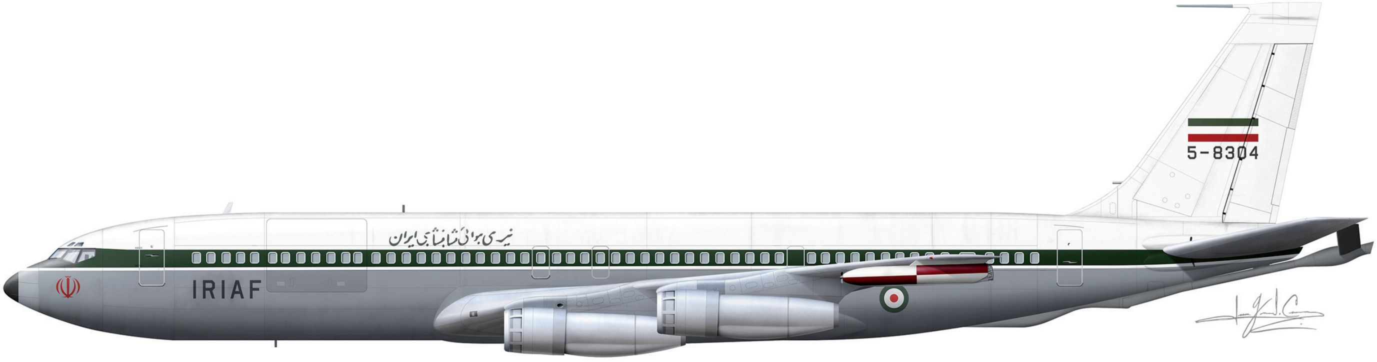
22 Interview with 'Major K' (former IrAF Mirage/Super Etendard pilot) to Brigadier General Ahmad Sadik al-Astrabadi, 03/2007. For comparison, more recent claims from Spanish sources, according to which the Iraqi Super Etendards flew their first combat sortie only on 24 March 1984, and that on this occasion one of their Exocets hit the construction site of the nuclear reactor in Bushehr – lack support even from their supposed source (the Information Circular INFCIRC/319 of the International Atomic Energy Agency [IAEA], September 1984).

ABOUT THE AUTHORS

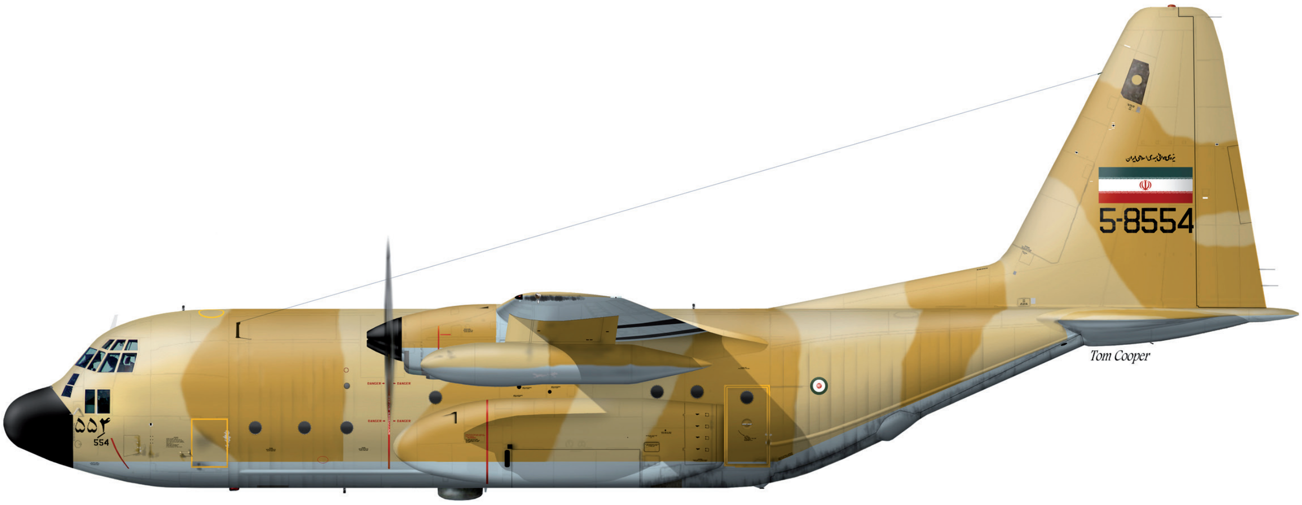
Tom Cooper is an Austrian aerial warfare analyst and historian. Following a career in the worldwide transportation business – during which he established a network of contacts in the Middle East and Africa – he moved into narrow-focus analysis and writing on small, little-known air forces and conflicts, about which he has collected extensive archives. This has resulted in specialisation in Middle Eastern, African and Asian air forces. He has authored and co-authored more than a dozen books about the Iran-Iraq War, including four volumes on ground warfare, several about the Iranian air force, two about the history of the Iraqi Air Force, and one on the history of the operational deployment of Dassault Mirage F.1s in Iraq. Cooper has been an editor of Helion's five @War series since 2017.

Sirous Ebrahimi, from Iran, is a sailor, captain in the Iranian merchant navy and a marine pilot. Born into a military family, he became interested in the history of aviation and air forces during the childhood. In his youth, he participated in the Iran-Iraq War and took part in the battles of East Basra and Shalamcheh. After the war, he engaged in commercial shipping, and obtained valuable, first-hand experience in the field of defence. He has written several books summarising his war memoirs and numerous articles published in the specialised press in Iran.

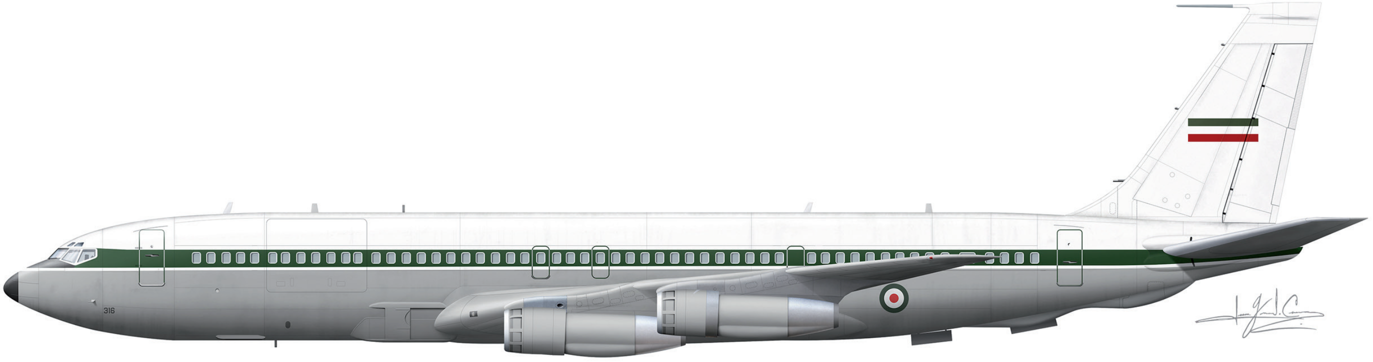
E.R. (Ted) Hooton is a retired defence journalist who worked for 30 years with Moench and Jane's before establishing the Spyglass newsletters. Since retirement he has focussed upon military history and has written some 15 books covering subjects as diverse as the Iran-Iraq Tanker War (co-authored with Mr Martin Navias), the Chinese Civil War, the Luftwaffe, the Balkan Wars (1912–1913), the Spanish Civil War, air operations over the Western Front (1916–1918) and Eastern Front (1941–1945). With Tom Cooper he has written a four-volume history of the Iran-Iraq War on the ground for Helion's @War series.



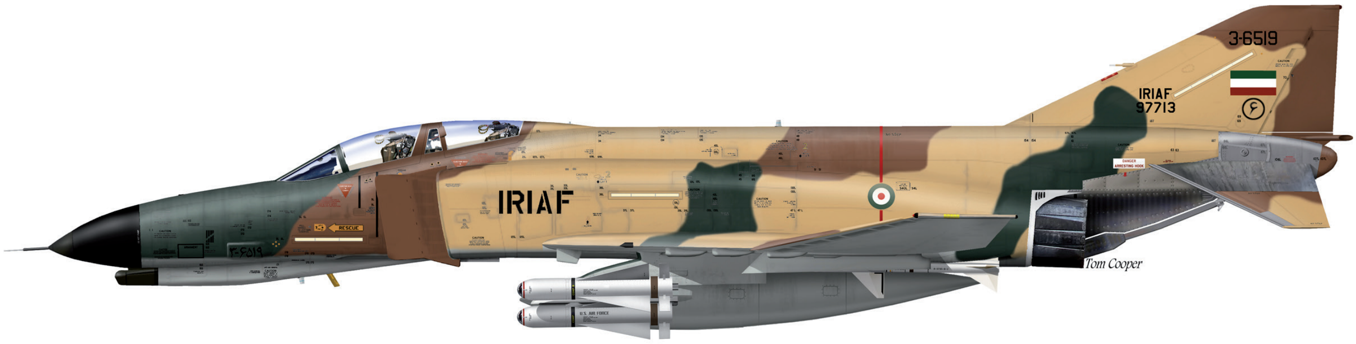
During the 1970s, the Imperial Iranian Air Force adopted so much of the doctrine of the US Air Force that in some circles it became known as the 'USAF East'. The IIAF owned a fleet of 14 Boeing 707-3J9C tankers and transports and these proved of crucial importance for stretching the reach of the fleets of F-4 Phantoms and F-14 Tomcats. Notably, because the two types had entirely different in-flight refuelling systems, Iranian B707-3J9Cs were equipped with both the steerable 'boom' under the rear fuselage for the F-4s, and Beech Model 1080 refuelling pods for the hose-and-drogue system for the F-14s. Generally, as of the early 1980s, IRIAF B707s were still wearing this livery, in white on the top, a dark green cheat line, and light grey along the lower fuselage. Wings and horizontal fins were left in bare metal overall. (Artwork by Luca Canossa)



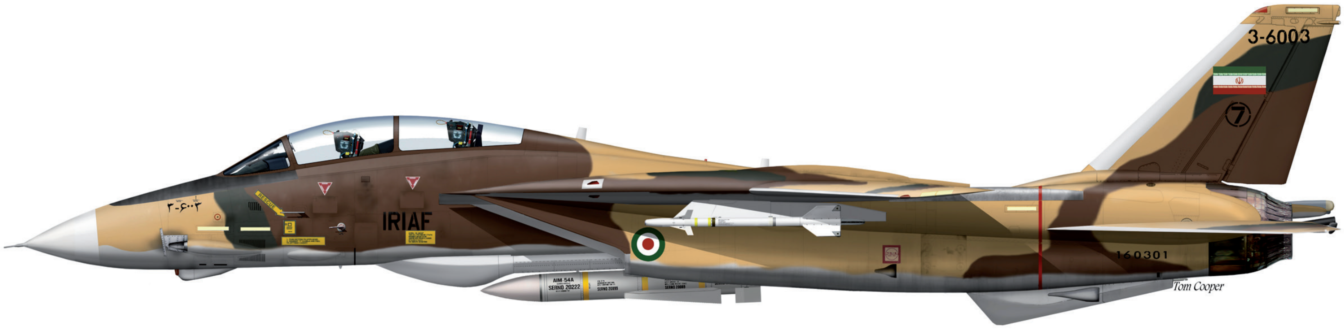
The original *Khoofash* aircraft of FASHA were four C-130Hs, converted into COMINT/ELINT/SIGINT-gatherers by E-Systems in 1976–1977. Upon the delivery of converted B707-3J9Cs, two became surplus, leaving only two (R)C-130Hs in service: 5-8884, shown here, and 5-8885. Like the B707s, both were assigned to the Mehrabad-based Electronic Warfare Squadron of FASHA, but to better conceal their true nature, they retained the same camouflage pattern as that worn by other Iranian C-130E/Hs. Similarly, their 'outboard drop tanks' were actually pods carrying COMINT/ELINT/SIGINT equipment: the rest of their mission equipment was inside a small dome on the lower fuselage. While the Iraqis claimed to have shot down at least two examples during the war, both (R)C-130Hs remain operational to the present day. (Artwork by Tom Cooper)



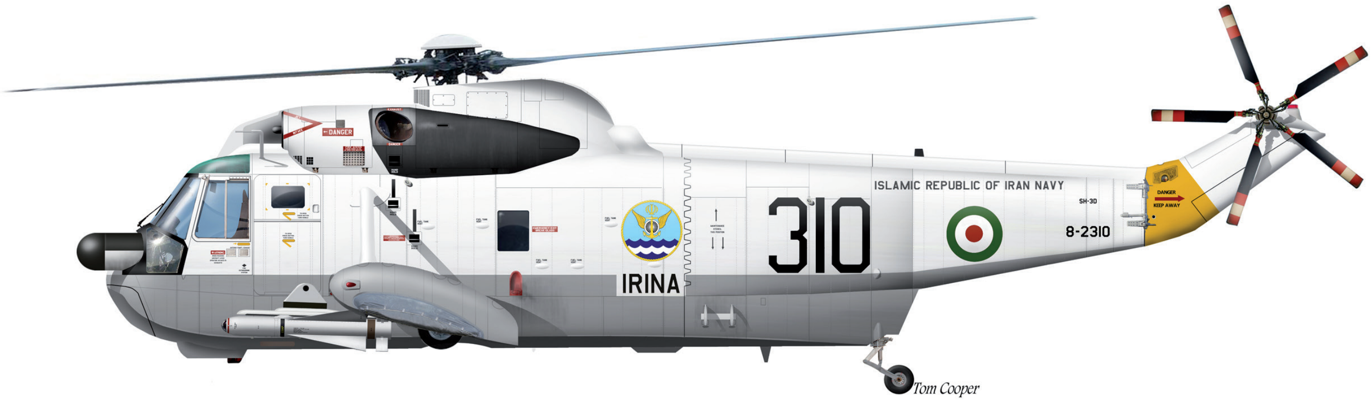
Perhaps the least-well-known US-made aircraft in Iranian service were two B707-3J9C tankers converted by E-Systems into very advanced COMINT/ELINT/SIGINT-gatherers as part of Project Ibex in 1977–1978 and code-named *Khoofash* just like the similarly adapted (R)C-130Hs. While showing a much lesser array of antennas than the roughly comparable Boeing RC-135s of the US Air Force, they still had sizeable 'cheek' containers low on either side of the fuselage in front of the wing roots. Both were operated by FASHA's Electronic Reconnaissance Squadron from TFB.1 (Mehrabad, in Tehran). Interestingly, at least this example – full serial number 5-8316 – has retained its 'tanker-like' livery – white and grey, with a cheat line in dark green – up to the present day. (Artwork by Luca Canossa)



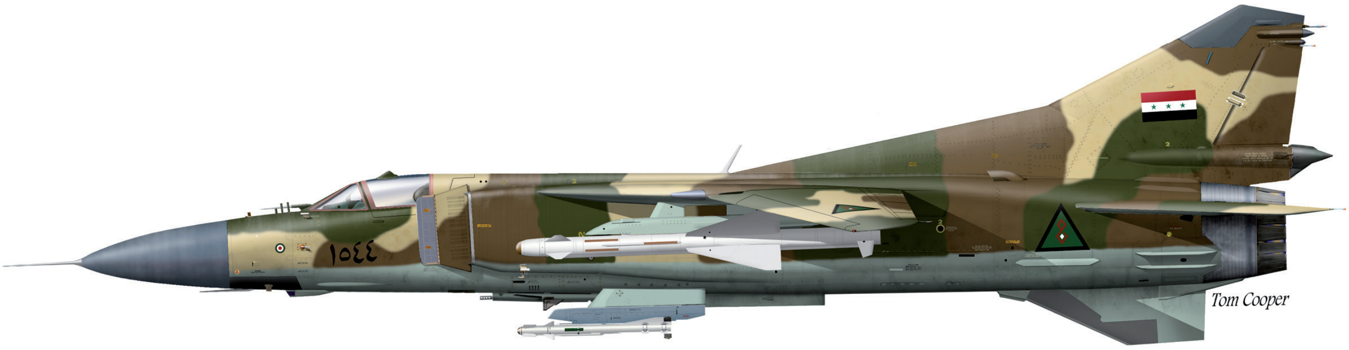
Through 1981–1983 McDonnell-Douglas F-4E Phantom II fighter-bombers from TFB.6 (Bushehr) remained the primary means of providing close air support for the IRIN's convoy operations. For this purpose, they almost exclusively deployed AGM-65A Maverick electro-optically guided air-to-ground missiles. The relatively short range of this weapon (about 2nm/5,000m) meant that they had to approach their targets quite close before opening fire: the AGM-65A also tended to lose lock-on due to sun glint and other phenomena created by the local sea state and weather. This F-4E – full US FY-serial 69-7713 (formerly 3-635 of the IIAF, and then 3-6502 from 1976) – belonged to the first batch of 36 of this subvariant delivered in 1971. It survived some damage early during the war with Iraq, was repaired at the IACI at Mehrabad, and returned to service with the new serial 3-6519. (Artwork by Tom Cooper)



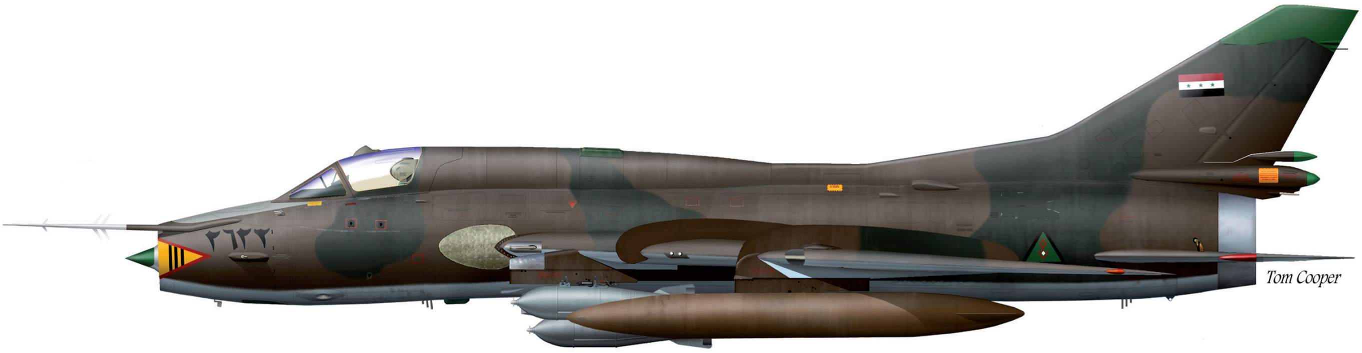
Like the F-4Es, Grumman F-14A Tomcat interceptors of the IRIAF retained their Asia Minor camouflage pattern (in tan/FS30400, dark brown/FS30140, and dark green/FS34079 on upper surfaces, and light gray/FS36622 on undersufaces) throughout the war. This example – US-serial 160301, IIAF/IRIAF 3-6003 – belonged to the first batch of 30 ordered in 1973, and was only the third Tomcat made for Iran. Together with most early Iranian F-14s, it was assigned to TFB.7, the insignia of which can be seen on the fin, underneath the fin-flash, in the form of the black digit 7, set within a black ring. It is shown with the usual armament configuration for 1981–1983, consisting of one or two AIM-54As on under-fuselage pallets, and AIM-9Js on shoulder stations. (Artwork by Tom Cooper)



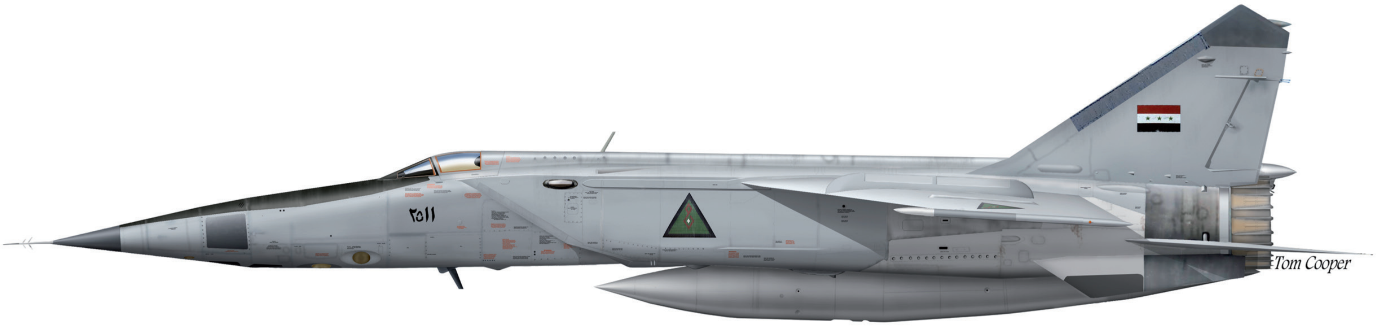
As clear from its nose-mounted search radar, the ASH-3D serial number 8-2310 belonged to the first batch of Sea Kings made for Iran, but initially received the livery in white and grey usually associated with the second batch – before being completely overpainted in the same blue-grey colour as worn by AB.212ASWs (as described in Volume 1). As usual, it received the crest of the IRINA, a full set of maintenance and warning insignia, the service title, and the 'last three' of its serial number on the sides of the cabin, while the full serial was applied on the boom. In 1982, this ASH-3D also became one of two helicopters of this type equipped with a single-rail launcher for AGM-65A Maverick missiles on either side of the lower fuselage. The type saw intensive service in support of every convoy operation. (Artwork by Tom Cooper)



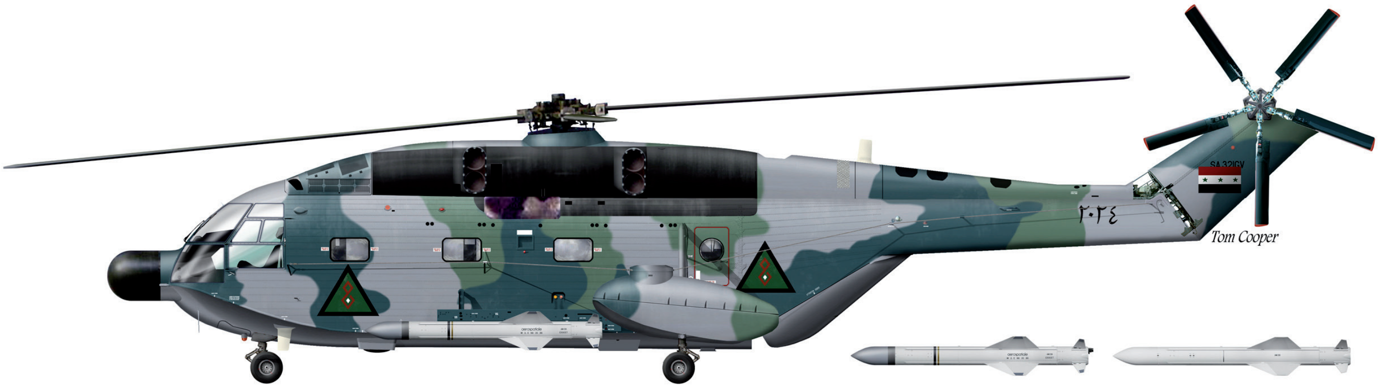
Following disappointment with the earlier MiG-23MS, in 1978 the IrAF placed an order for 18 advanced MiG-23MFs, with armament including R-23R and R-23T medium-range air-to-air missiles (ASCC/NATO-reporting name 'AA-7 Aphid'). Only five reached Iraq before the Soviet arms embargo of September 1980–May 1981, but immediately afterwards the Soviets delivered the remaining examples, enabling the resulting unit, No. 67 Squadron, to be worked up. From that period onwards, flights of four were regularly deployed at Wahda AB, and they saw much action against Iranian F-4s and F-14s over the northern Persian Gulf. All wore the standardised camouflage pattern in beige (BS381C/388), dark brown (BS381C/411 or 450, and olive green (BS381C/298), on upper surfaces and sides, and light admiralty grey (BS381C/697) on undersides. (Artwork by Tom Cooper)



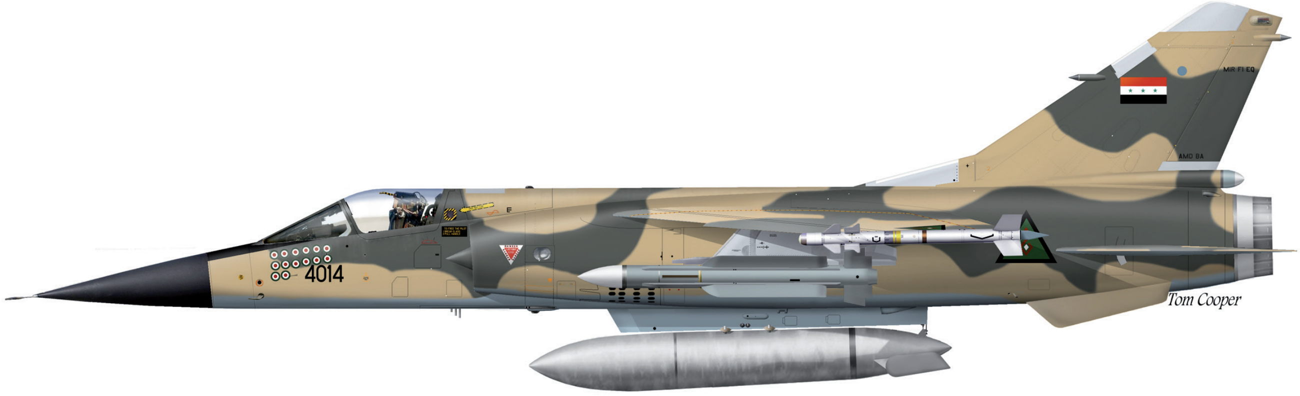
Another 'new' Soviet-made type to enter service with the IrAF in 1981 was the Su-22M-2K: essentially, this was a subvariant of the earlier Su-22M, locally modified with Soviet help to be compatible with Kh-28 anti-radiation missiles, with four hardpoints (instead of two) under the fuselage. Sadly, the exact appearance of Su-22M-2Ks and subsequent Su-22M-3Ks serving with No. 109 Squadron from 1983 remains unknown. This Su-22M-2K is shown as armed with four FAB-500M-62 500kg bombs as regularly used for air strikes against BIK and – equipped with delay fuses – for 'carpet bombing' of the sea off Genaveh in an attempt to damage one of the undersea pipelines to Khark. This example is shown in the scheme used by all Su-22s delivered to Iraq from around 1981–1983, they wore a standardised camouflage pattern in dark earth (BS381C/350), and dark green (BS381C/641) on upper surfaces and sides, and light admiralty grey (BS381C/697) on undersides. This example wore the serial number 2632. (Artwork by Tom Cooper)



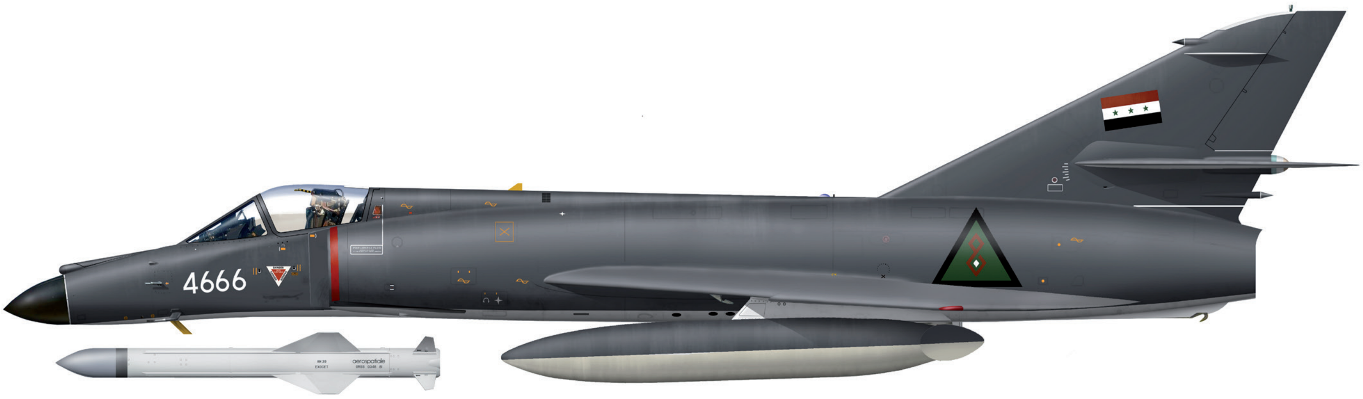
Parallel to helping work-up the MiG-23MF-equipped No. 67 Squadron, at the same air base – Taqaddum, west of Baghdad – as part of Project 84 the Soviets also helped work-up No. 87 Squadron: Iraq's first MiG-25 unit. Initially, this primarily flew MiG-25R reconnaissance aircraft: their first recorded operation over the northern Persian Gulf took place on 21 October 1981, when a single jet passed over Khark at an altitude of 21,000m and speed of Mach 2.8, proving beyond the reach of IRIAF MiM-23B I-HAWKs and, later on, most interception attempts by F-14As. Regular overflights were stopped only when the jet piloted by Lieutenant Colonel Abdullah Faraj al-Azzawi (CO No. 87 Squadron) was shot down by an F-14A from TFB.7. All Iraqi MiG-25s wore the livery in camouflage grey (BS381C/626) overall, with dielectric surfaces in dark gull gray (FS25311). This example wore the serial number 2511. (Artwork by Tom Cooper)



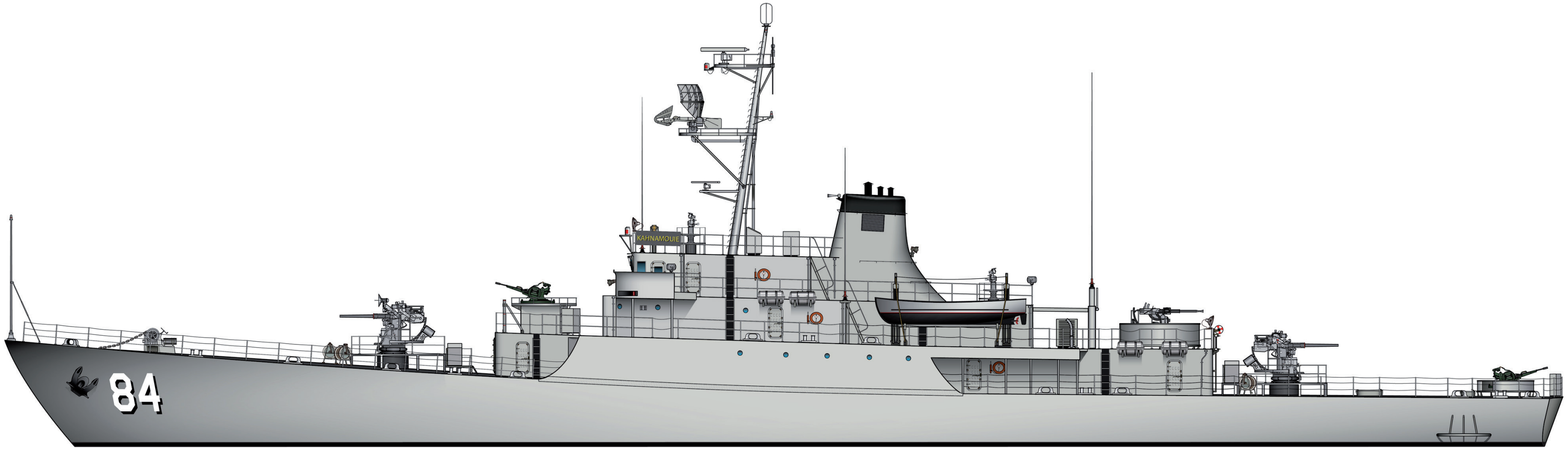
In April 1981, No. 101 Squadron of the Iraqi Navy received its twelfth and final SA.321GV Super Frelon helicopter. By that time, the unit had already lost two, and a third was written off after a mishap in August of that year, thus reducing the total to nine. Nevertheless, the squadron worked up and began deploying the original batch of 60 AM.39 Exocets in May 1981. All wore the same camouflage pattern in light grey-blue, grey-green, and Saxe blue. The early examples also had their radome painted in mid-grey. Some examples had floats and the ORB.32 Heracles radar – as shown here – instead of the earlier ORB.31. This example wore the serial 2024. AM.39 Exocets were always attached on a special pylon, carried low on the fuselage side. (Artwork by Tom Cooper)



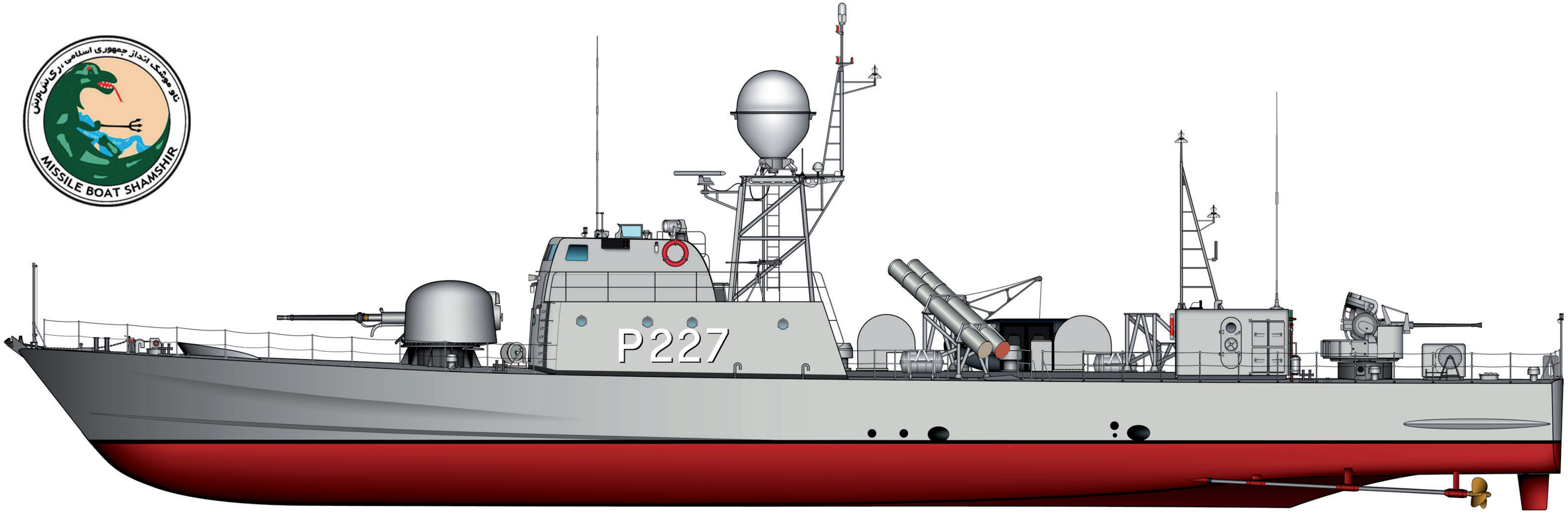
Starting in September 1981, Dassault Mirage F.1EQs of No. 79 Squadron, IrAF, began challenging Iranian F-14As. In three air combats of that November, they shot down three Tomcats using Matra Super 530F medium-range air-to-air missiles. This was the most famous jet of this unit: wearing 14 kill markings – of which only two were officially confirmed – for claims by the deputy commander of No. 79 Squadron, Major Abdul Karim Mukhalad. All Iraqi Mirage F.1EQs of this period wore the standardised camouflage pattern in Brun Café (dark sand, FS30475), and Khaki (FS36134) on upper surfaces and sides, and light blue gray (FS35189) on undersurfaces. The jet is shown in standard intercept configuration, armed with Super 530F (underwing pylon) and R.550 Magic I (wingtip rails) air-to-air missiles, and carrying a single RP.35 drop tank under the centreline. (Artwork by Tom Cooper)



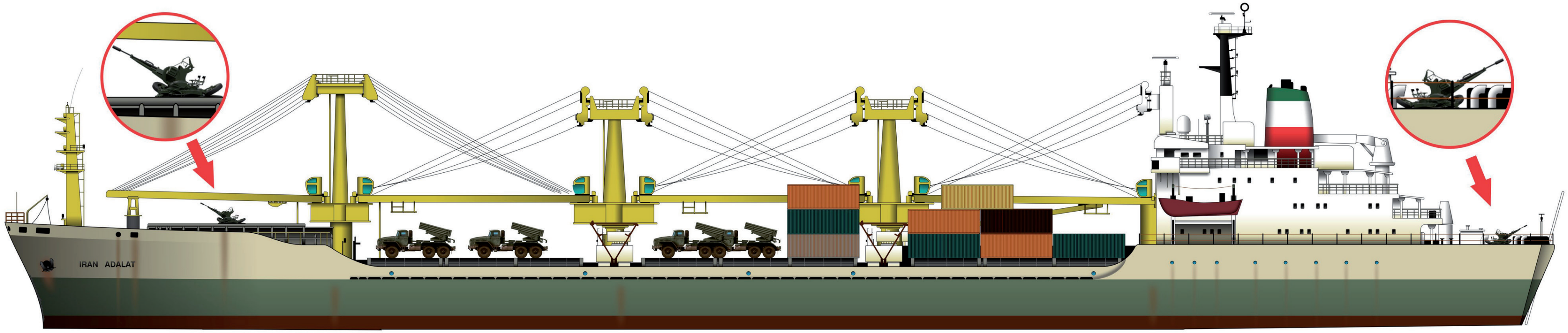
As a result of the negotiations for Project Baz-3, and as part of Operation Sugar, in October 1983 France leased five Dassault Super Etendard fighter-bombers to Iraq. As delivered to Iraq, they retained their camouflage consisting of extra dark sea grey (FS36076) on top surfaces and sides, and insignia white (FS17875 or FS37095) on undersides. The French national insignia was replaced by that of Iraq (with the fin flash with strong inclination), and their French serials 65, 66, 67, 68, and 69, with Iraqi serial numbers 4665, 4666, 4667, 4668, and 4669. Standard armament consisted of one AM.39, always on the right inboard underwing hardpoint, which required the installation of a module with Exocet-related avionics instead of the two 30mm DEFA guns. The left inboard underwing pylon was usually occupied by a 600-litre RP.24 drop tank. (Artwork by Tom Cooper)



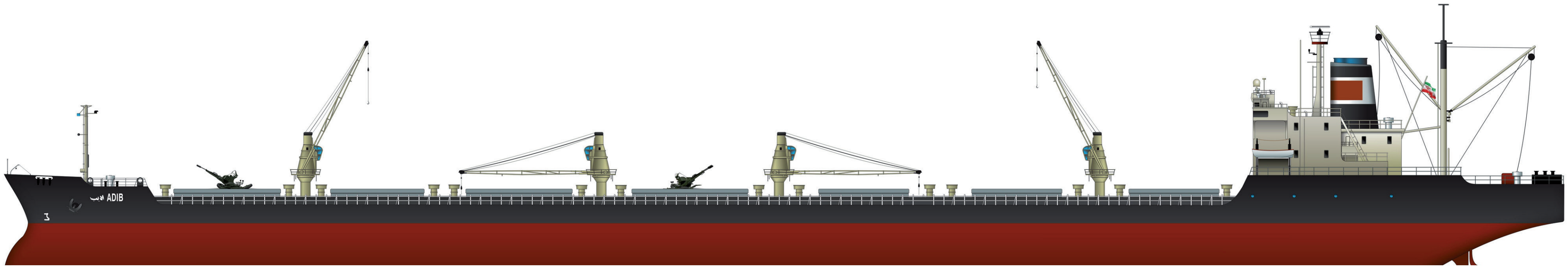
IRIS *Kahnamuie* (hull number 84, ex-F 27, ex-PF-106) was a PF-103/Bayandor-class corvette. Iran acquired four ships built in two batches at Levingston SB in Texas. The ship's original armament consisted of two Mk.34 76mm/50 DP guns, two Bofors 40mm guns, one hedgehog, four launchers for depth charges, and two rails for 60 depth charges aft. As such, it was a specialised anti-submarine warfare vessel. During the war with Iraq, *Kahnamuie* spent most of the time protecting Khark, and the rails for depth charges were removed and replaced by a single twin-barrel 23mm ZU-23 autocannon of Soviet origin. Electronics included the Raytheon SPS-6 search radar, the SPG-34 fire-control radar, and the SQS-17 sonar. The usual complement was around 120 crew. Following a hit by an AM.39 Exocet on the evening of 1 October 1982, with the loss of 20 crewmembers, she was abandoned. Damaged beyond repair, her burned-out hulk sank in bad weather about a month later. (Artwork by Ivan Zajac)



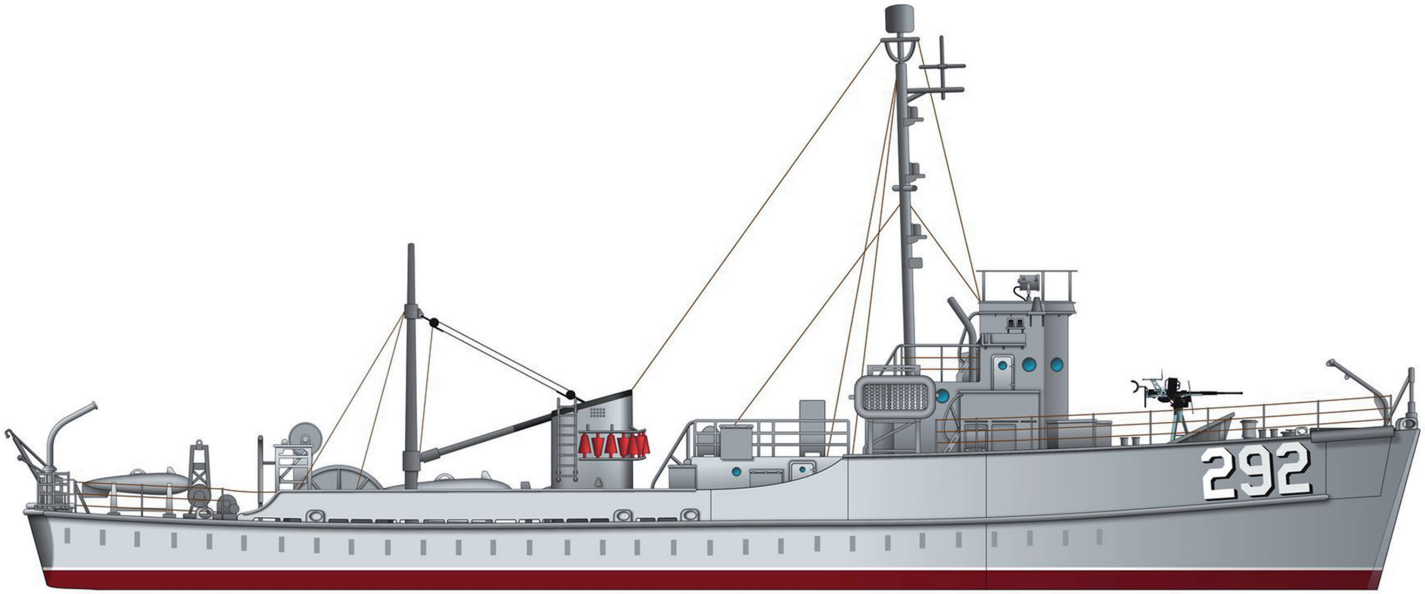
IRIS *Shamshir* (hull number P227) was the seventh vessel of the La Combattante II/Kaman-class. Laid down at Constructions Mécaniques de Normandie (CMN) in Cherbourg on 15 May 1976, it was launched on 12 September 1976, and commissioned into service on 31 March 1978 (together with *Paykan* and *Falkhon*). Slightly over 47m long (154ft 2in), it displaced 234 tons. Armament included one OTO-Melara automatic 76mm (3in) gun forward, four RGM-84A Harpoon missiles in launchers installed amidships (though, for most of the war, only two of these were actually carried), and a Bofors 40mm gun aft. At least two machine guns were also installed around the island during the war. It could reach a speed over 30kts (56km/h) and had a range of about 570 nautical miles (1,060km) at 30 knots, or 1,600nm (3,000km) at 15 knots. During the night from 1 to 2 May 1983, *Shamshir* scored a confirmed kill against an Iraqi Osa. (Artwork by Ivan Zajac)



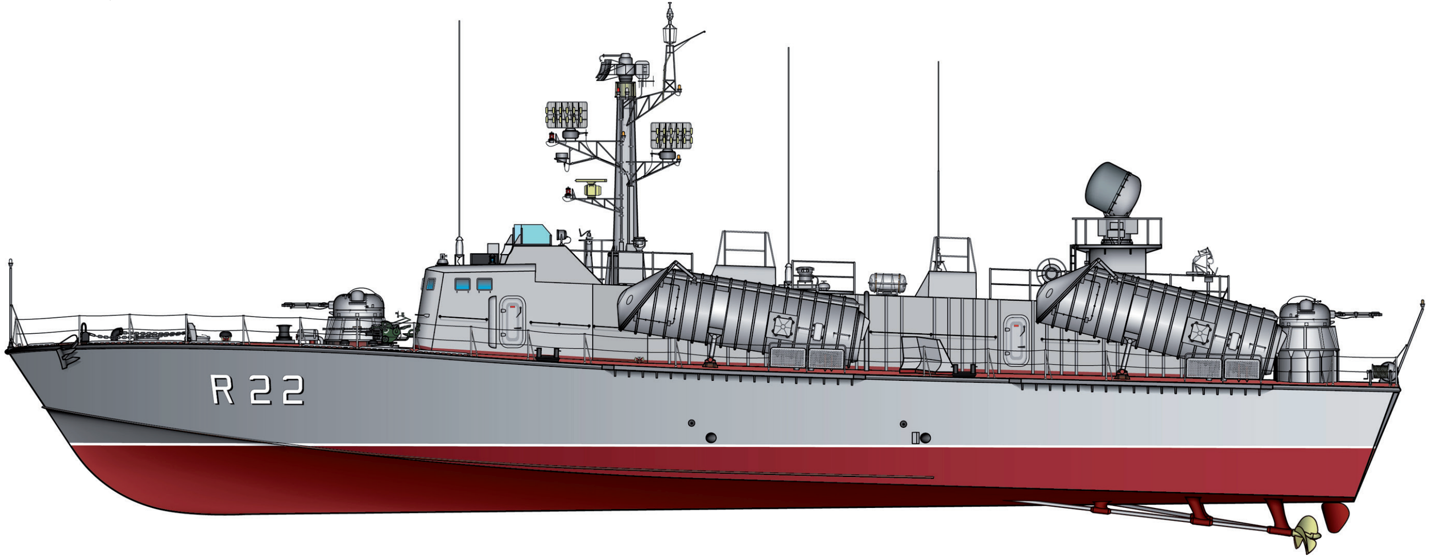
The Islamic Republic of Iran Shipping Line Group was originally established in 1967 as Arya Shipping with the aim of supporting domestic industries. The company was renamed and subjected to the control of the Ministry of Commerce in 1979. During its rapid expansion, in 1977 it ordered a series of general cargo carriers from Sumitomo Heavy Industries in Yokosuka, Japan. One of these was *Arya Sepehr*, constructed in the same year but renamed *Iran Adalat* in 1979. The ship had a length of 166.61m and width of 24.47m: it displaced 8,556.4 tones net, and 14,433grt. Always registered in Iran, and home-ported in Bandar-e Abbas, *Iran Adalat* saw quite significant involvement in convoy operations, including dozens of trips to BIK and back to Bushehr. From 1983, it was armed with two ZU-23s: one on the forward cover of the cargo hold, and another on the stern. Eventually, *Iran Adalat* was sold to India for scrap in April 2007. (Artwork by Anderson Subtil)



Constructed in 1977 at Izar Seville shipyard, in Sevilla, in Spain, as *Patricia*, the bulk carrier *Adib* was one of four similar vessels acquired by the Iranohind Company in 1982 (others were *Anis*, *Aseel*, and *Amin*). This was an enterprise owned 51 percent by Iran and 49 percent by India. *Adib* had an overall length of 206m, and displaced 34,995 tons (19,527grt). All saw intensive service during convoy operations and are known to have been armed with a pair of ZU-23 anti-aircraft guns operated by the IRIN, which were installed on hatches for the No. 1 and No. 4 holds. Furthermore, *Adib* had two 12.7mm machine guns on the wings of her bridge. On 12 September 1984, while carrying a cargo of wheat from Australia for BIK, *Adib*'s crane No. 4 was hit by a missile (probably an Exocet): the explosion killed the entire bridge crew, and the vessel ran aground near Buoy No. 4. She was refloated, unloaded in BIK, and then sailed to Bushehr for repairs. Indeed, together with *Amin*, *Adib* was the only one of four ex-Spanish vessels in Iranian service to survive the war. (Artwork by Anderson Subtil)

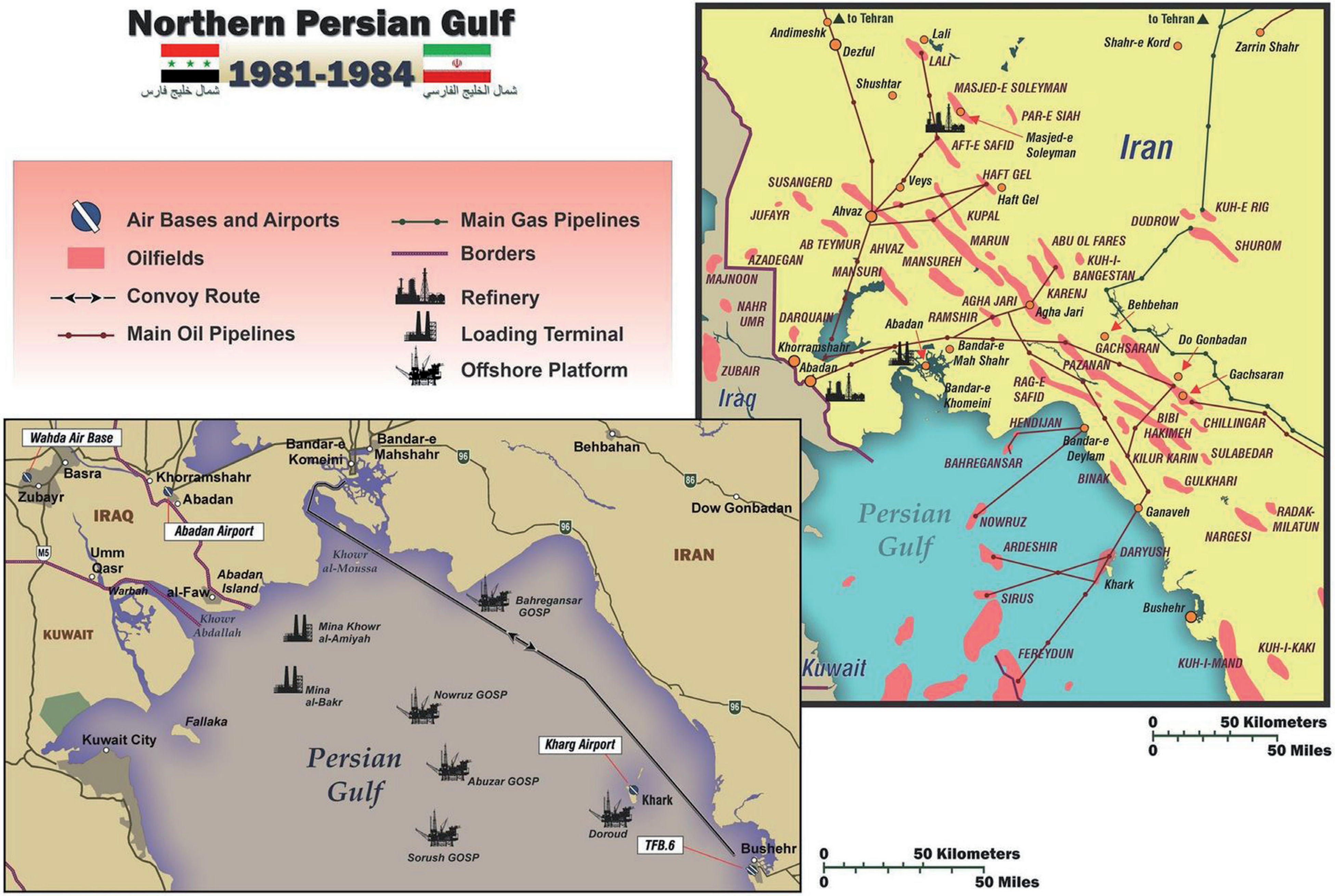


Constructed as MSC-34 for the US Navy by Peterson Builders Inc., in Sturgeon Bay, Wisconsin, USA, and commissioned into service in 1961, the future IRIS *Karkas* (hull number 292) was a mine-hunter of the MSC-292-class (and thus slightly larger than the MSC-268/Bluebird-class, known in Iran as the Shahrokh-class). It had a hull of wooden construction, with fittings of brass and stainless steel to reduce its magnetic signature. The rated displacement was 378 tons at full load. Exactly 42m long overall, and powered by two 2,890hp diesel engines, the ship could reach a speed of 12.8 knots. It was armed with a single Oerlikon 20mm autocannon forward, and two 12.7mm machine guns. Despite several Iraqi claims of its sinking, IRIS *Karkas* survived the war and was withdrawn from service only in 2008. (Artwork by Anderson Subtil)



Osa II-class missile boats remained the most powerful warships of the Iraqi Navy throughout the war with Iran. Their operations were a constant threat to the IRIN-operated convoys, and their P-15 Termit (SS-N-2 Styx) missiles were responsible for the loss of several merchants and the complete failure of the caravan run on 3 September 1982. The gun armament of the Osa II-class included two AK-230 twin 30mm guns (each with 2,000 rounds): one was placed fore, the other behind missile containers aft. They were water-cooled and fired at 2,000 rounds per minute, over an effective range of 2.5km. Through 1981 and 1982, all received additional 14.5mm DShK heavy machine guns on either side of the bridge. While AK-230s and DShKs were effective for self-defence against air strikes, they were hopelessly out-ranged in engagement with Iranian Kaman-Class. (Artwork by Ivan Zajac)

Northern Persian Gulf 1981-1984


شمال خليج فارس
شمال الخليج الفارسي
Air Bases and Airports
Oilfields
Convoy Route
Main Oil Pipelines
Main Gas Pipelines
Borders
Refinery
Loading Terminal
Offshore Platform
Wahda Air Base
Basra
Zubayr
IRAQ
Khorramshahr
Abadan
Abadan Airport
M5
Umm Qasr
Warbah
al-Faw
Abadan Island
Khowr Abdallah
KUWAIT
Kuwait City
Fallaka
Bandar-e Komeini
Bandar-e Mahshahr
96
Khowr al-Moussa
Mina Khowr al-Amiyah
Mina al-Bakr
Nowruz GOSP
Persian Gulf
Abuzar GOSP
Sorush GOSP
Bahregansar GOSP
Behbahan
86
Dow Gonbadan
IRAN
Kharg Airport
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to Tehran
Andimeshk
Dezful
Lali
LALI
Shushtar
MASJED-E SOLEYMAN
PAR-E SIAH
AFT-E SAFID
Masjed-e Soleyman
Iran
Shahr-e Kord
Zarrin Shahr
SUSANGERD
Veys
HAFT GEL
Haft Gel
JUFAYR
Ahvaz
KUPAL
KUH-E RIG
DUDROW
SHUROM
AB TEYMUR
AHVAZ
MARUN
ABU OL FARES
AZADEGAN
MANSURI
MANSUREH
KUH-I-BANGESTAN
MAJNOON
KARENJ
AGHA JARI
Agha Jari
NAHR UMR
DARQUAIN
Abadan
RAMSHIR
Behbehan
Do Gonbadan
GACHSARAN
Gachsaran
Bandar-e Mah Shahr
PAZANAN
ZUBAIR
Iraq
Bandar-e Khomeini
RAG-E SAFID
HENDIJAN
BIBI HAKIMEH
CHILLINGAR
Bandar-e Deylam
BAHREGANSAR
KILUR KARIN
SULABEDAR
BINAK
GULKHARI
Ganaveh
RADAK-MILATUN
NOWRUZ
NARGESI
ARDESHIR
DARYUSH
Khark
SIRUS
Bushehr
KUH-I-KAKI
FEREYDUN
KUH-I-MAND
Kuwait

(Maps by Anderson Subtil)

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Well away from the major battlefields on the ground in the Iran-Iraq War, and hidden from the gaze of the curious public, the navies and air forces of the two belligerents contested the waters of the Persian (or Arabian) Gulf. This naval aspect of the war still remains largely unknown and hugely underreported in the West other than in terms of the 'Tanker War' and the impact upon international shipping.

Yet this was a war in which Iran and Iraq pitted the best technologies available to them – bought from the world's leading arms manufacturers and exporters – against each other's vital oil production and exports, and against crucial maritime lifelines. Iran in particular relied upon 'caravans' of shipping to import raw materials, provide logistic support to the land war, and to export oil-based products. Iraq would make the first (and by far most extensive) combat use of the famous Exocet anti-ship missile long before its first claimed use by Argentina in the Falklands/Malvinas War and would make extensive use of French-sourced electronic warfare capabilities and Soviet anti-radiation missiles. Iran would make the first combat use of the F-14 Tomcat and its associated AIM-54 Phoenix air-to-air missile and would be the first to launch the RGM-84 Harpoon surface-to-surface missile in anger. Far from being a backwater, this was the testing ground for many cutting-edge technologies.

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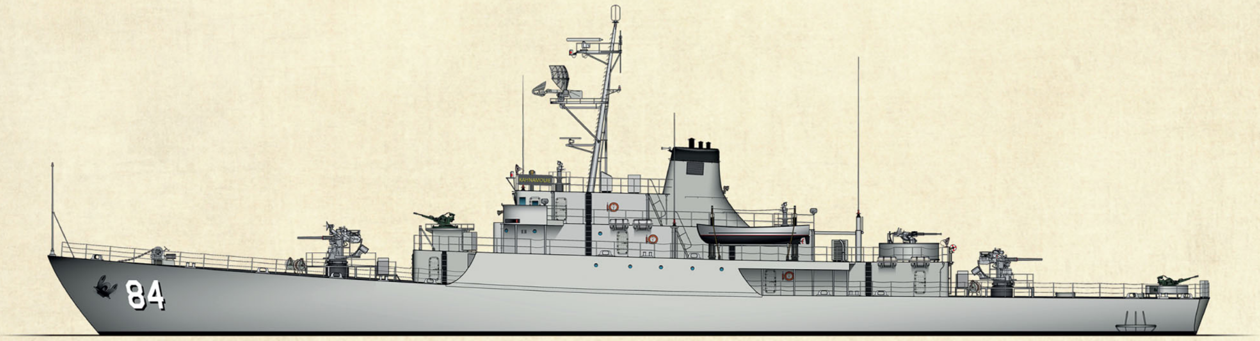

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